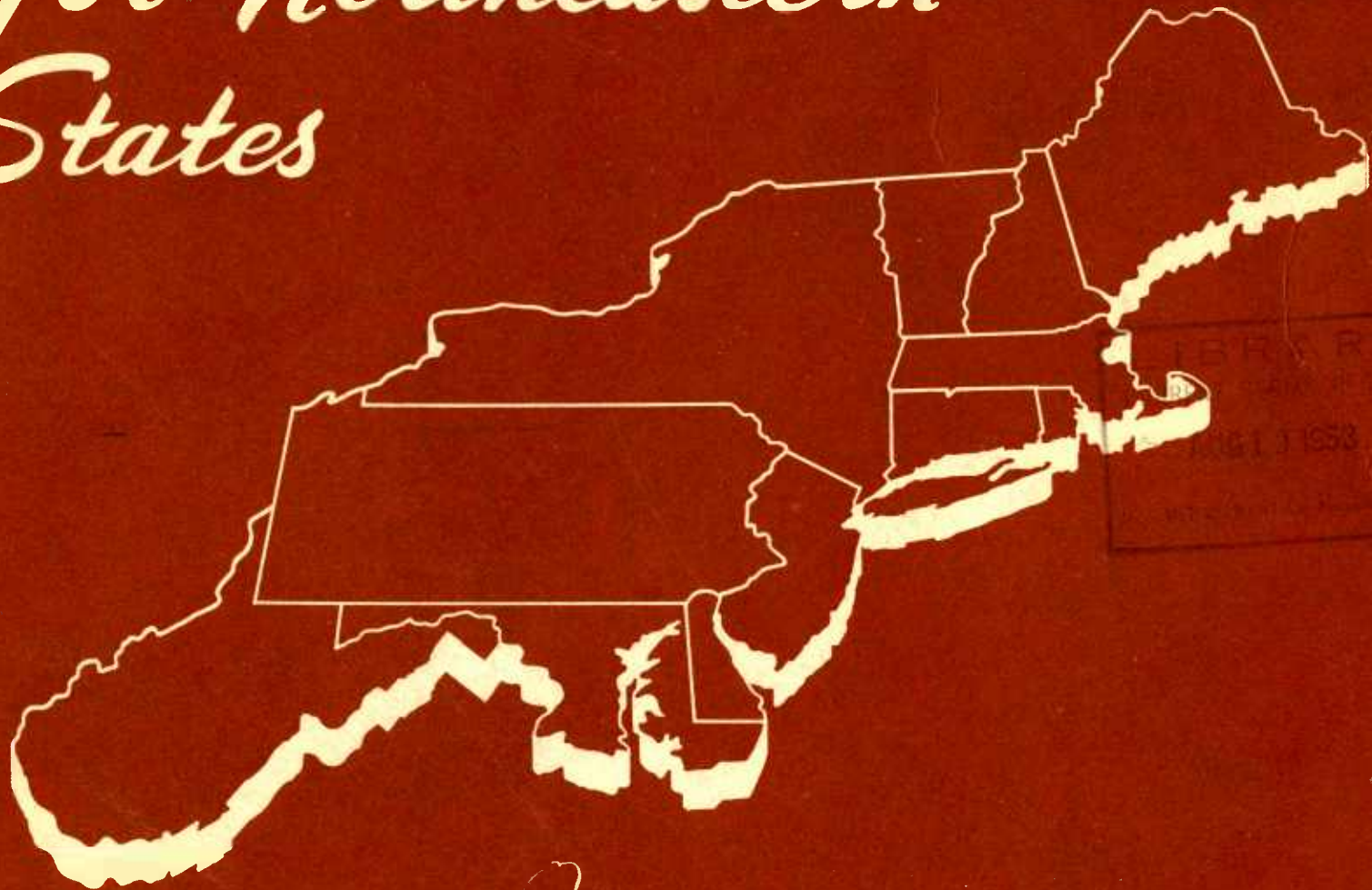


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PLANS OF FARM BUILDINGS

*For Northeastern
States*



U. S. DEPARTMENT OF AGRICULTURE

MISCELLANEOUS PUBLICATION NO. 278 REVISED

THUMB INDEX

The plans illustrated in this book are grouped under the index titles printed on the margin of this page.

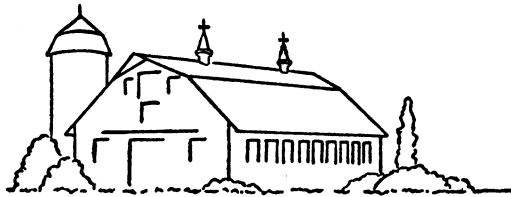
The first page of each group is indicated by a thumb mark on its edge directly beneath the corresponding index title.

To locate a group of plans, bend the book to expose the thumb marks and open at the mark in line with the selected index title.

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PLANS OF FARM BUILDINGS FOR NORTHEASTERN STATES



Compiled by

THE BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING AND THE EXTENSION
SERVICE IN COOPERATION WITH THE FOLLOWING COLLEGES AND UNIVERSITIES AND THEIR
COOPERATIVE EXTENSION SERVICES

College of Agriculture, University of Connecticut	Storrs, Conn.	New Jersey State College of Agriculture, Rutgers University.	New Brunswick, N. J.
School of Agriculture, University of Delaware	Newark, Del.	New York State College of Agriculture, Cornell University.	Ithaca, N. Y.
College of Agriculture, University of Maine	Orono, Maine	School of Agriculture, Pennsylvania State College	State College, Pa.
University of Maryland	College Park, Md.	School of Agriculture, Rhode Island State College	Kingston, R. I.
School of Engineering, University of Massachusetts	Amherst, Mass.	College of Agriculture, University of Vermont	Burlington, Vt.
College of Agriculture, University of New Hampshire	Durham, N. H.	College of Agriculture, West Virginia University	Morgantown, W. Va.

INTRODUCTION

FARM BUILDING PLAN SERVICES are organized in four regions, the Northeast, South, West, and Midwest. These plan services are conducted cooperatively by the United States Department of Agriculture, the State extension services, and in some States the agricultural engineering departments of the State agricultural colleges. The best plans for various types of farm buildings developed by the State extension services, the agricultural colleges, or the Department of Agriculture are made available to farmers through the plan services within the region for which they are suited.

HOW PLANS WERE SELECTED

The selection of plans for this publication was made by a committee representing the State colleges and universities of the Northeastern region listed on the title page. Included are the various types of buildings in common use throughout this region. These plans incorporate the latest research findings and the best available information on the arrangement and construction of buildings for livestock, processing and storage of farm products, storage of equipment, and other purposes. The types of construction shown have been well tested in actual practice. Special details are included for barns that are to be constructed in

parts of the region where heavy winds may cause damage.

PLANNING FOR LOCAL CONDITIONS

The plans shown in this book are generally adapted to conditions of the Northeastern States. A few of the designs, however, may not be suitable for particular parts of the region without some modification.

Climatic conditions in the Northeast differ. The map in figure 1 suggests broad variations in three of the factors, temperature, humidity, and wind, that must be considered in the construction of buildings. In zone 1, insulation and ventilation must be planned to meet severe winter conditions, whereas in zone 2, although temperatures well below freezing are to be expected, winter weather is less extreme. In the small part of the Northeastern region lying in zone 3 winters are relatively mild. Naturally temperature and humidity within these zones are not uniform but vary with altitude and other local factors. There are no abrupt changes at the zone lines, and, in general, differences are noticeable only over considerable distances.

In the hurricane areas shown on the map, new buildings should incorporate the special construction features shown on the drawings to lessen the possibility of wind damage. Rainfall and soil conditions, as well as temperature, humidity, and wind, must be considered in planning for sufficiently deep foundations and for location and protection of water pipes.

Before selecting a plan the prospective builder should consult his county agricultural agent, who can help with the selection of the plan. Many States have additional plans not shown in this publication. The county agricultural agent can also give information about such plans and about bulletins and other material on building construction.

City and State health regulations governing the sale of whole milk differ sufficiently to require that dairy barn and milk house plans be approved by local dairy inspectors, not only as to the arrangement and construction details but also as to the location of the building on the farmstead.

Special drawings to meet individual needs are not furnished by the agricultural colleges or extension services. The services of architects and commercial agencies are recommended for altering these plans for special requirements and for adaptation to materials different from those shown.

SELECTION OF MATERIALS

Many of the buildings for which plans are shown in this publication can be constructed from various materials. Choice may depend on availability and prices, as well as on the skill of local builders. If homegrown timber is available, it may be used in the form of logs, poles, slabs, or sawed lumber. Native lumber to be used for framing, matched siding, tight roof sheathing, and some other uses should be properly piled and thoroughly seasoned.

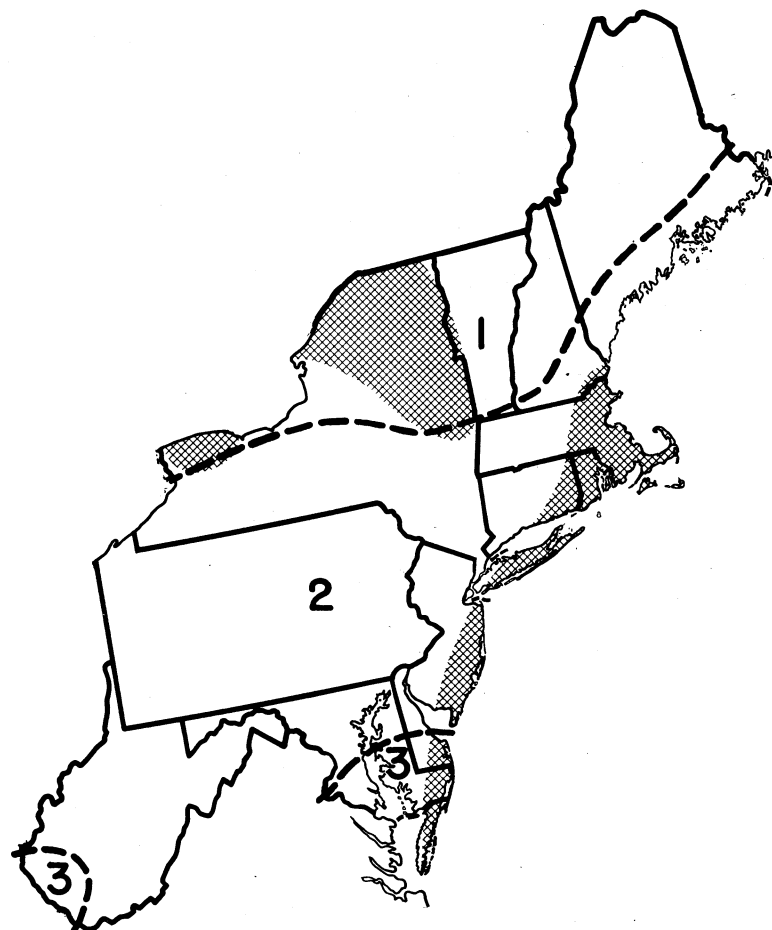


FIGURE 1.—Farm-building zones and hurricane areas in the Northeastern States. The building zones are based on average January temperatures and relative humidity. The cross-hatched areas show regions subject to winds of hurricane intensities.

It is sometimes more economical to use materials that need a minimum of skilled labor and special tools to install, even though the materials themselves may be high in price. This is especially true when some or all of the work is to be done by members of the family.

In many places field or quarried stone may be used. Such stones, well laid in good mortar, make attractive

and durable walls. Sand and gravel or broken stone from the farm can be used for concrete.

New materials and equipment, their suitability, advantages, and cost, should be compared with those commonly used. Publications listed in the United States Department of Agriculture Miscellaneous Publication 60, "List of Available Publications," contain information on building problems. Miscellaneous Publication 60 may be obtained from the Office of Information, United States Department of Agriculture, Washington 25, D. C. Many agricultural colleges also have bulletins dealing with materials and construction. Information about commercial building materials can be obtained from local dealers and from manufacturers. Booklets about the correct and economical use of many products are also supplied by trade associations, such as those listed below. Mention of these associations implies no endorsement by the United States Department of Agriculture nor can any discrimination be inferred against organizations omitted.

Aluminum Association, 420 Lexington Avenue, New York 17, N. Y.
American Institute of Steel Construction, 101 Park Avenue, New York 17, N. Y.

American Zinc Institute, 60 East Forty-second Street, New York 17, N. Y.

Asbestos Cement Products Association, 509 Madison Avenue, New York 22, N. Y.

Asphalt Roofing Industry Bureau, 2 West Forty-fifth Street, New York 19, N. Y.

Barn Equipment Association, Board of Trade Building, Chicago 4, Ill.

Copper and Brass Research Association, 420 Lexington Avenue, New York 17, N. Y.

Copper Institute, 50 Broadway, New York 4, N. Y.

Douglas Fir Plywood Association, Tacoma Building, Tacoma 2, Wash.

Edison Electric Institute, 420 Lexington Avenue, New York 17, N. Y.

Fir Door Institute, 1205 Rust Building, Tacoma 2, Wash.

Gypsum Association, 20 North Wacker Drive, Chicago 6, Ill.

Insulation Board Institute, 111 West Washington Street, Chicago 2, Ill.

Metal Window Institute, 806 Rowland Road, Cheltenham, Pa.

National Association of Domestic and Farm Pump Manufacturers, 39 South La Salle Street, Chicago 3, Ill.

National Association of Sheet Metal Distributors, 505 Arch Street, Philadelphia 6, Pa.

National Association of Silo Manufacturers, P. O. Box 30, Norwich, N. Y.

National Board of Fire Underwriters, 85 John Street, New York 7, N. Y.

National Door Manufacturers Association, 332 South Michigan Avenue, Chicago 4, Ill.

National Electrical Manufacturers Association, 155 East Forty-fourth Street, New York 17, N. Y.

National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

National Lumber Manufacturers Association, 1319 Eighteenth Street, Washington 6, D. C.

National Paint, Varnish and Lacquer Association, 1500 Rhode Island Avenue, Washington 5, D. C.

National Mineral Wool Association, 1270 Sixth Avenue, New York 20, N. Y.

National Retail Lumber Dealers Association, Ring Building, Washington 6, D. C.

National Woodwork Manufacturing Association, 332 South Michigan Avenue, Chicago 4, Ill.

Northeastern Lumber Manufacturers Association, 271 Madison Avenue, New York 16, N. Y.

Portland Cement Association, 33 West Grand Avenue, Chicago 10, Ill., and 347 Madison Avenue, New York 17, N. Y.

Red Cedar Shingle Bureau, 5510 White Building, Seattle 1, Wash.

Southern Pine Association, Canal Building, New Orleans 4, La.

Structural Clay Products Institute, 1520 Eighteenth Street NW., Washington 6, D. C.

Vermiculite Institute, 208 South La Salle Street, Chicago 4, Ill.

The cost of a building will vary with local wage rates and prices of material. Before a correct estimate can be made, it must be decided how much material and

labor is to be supplied by the farm and whether the work is to be done on the basis of day labor, or cost of material and labor plus a bonus, or by contract. The most accurate way to learn the cost is to submit plans and specifications to two or three local builders and obtain written bids for the complete work. All bidders should be required to submit bids on the same quality of materials, equipment, and workmanship.

HOW TO ORDER WORKING DRAWINGS

Working drawings for any building in this publication may be ordered from the State extension agricultural engineer at most of the State colleges in the Northeastern region. A nominal charge, varying in

the different States, may be made to cover printing and mailing costs.

Residents of Rhode Island may obtain working drawings by writing to the extension agricultural engineer, University of Massachusetts, Amherst, Mass.

In ordering plans, be sure to give the number of the plan wanted as well as the title.

If for any reason you cannot obtain the working drawings of the plan you want, write to the Division of Farm Buildings and Rural Housing, Bureau of Plant Industry, Soils, and Agricultural Engineering, United States Department of Agriculture, Beltsville, Md. This office cannot send you the working drawings, but it will direct you to the nearest State that can supply the plan you want.

BARNs

General Barn, drawing No. 5635; Horse Barn, drawing No. 5640; and Dairy Barns, drawings Nos. 5628, 5629, and 5630, show only floor plans and are so designed that they may be built of either frame or masonry in any of the roof types illustrated on the following pages. The detail sheets that go to make up a complete set of working drawings are shown on pages 20 to 44. In ordering working drawings for any of the above-mentioned plans, be sure to give not only the

drawing number of the barn plan but also the title and drawing number of each of the detail sheets required to build the type of barn you want. If in doubt as to the detail sheets you need, consult your county agricultural agent.

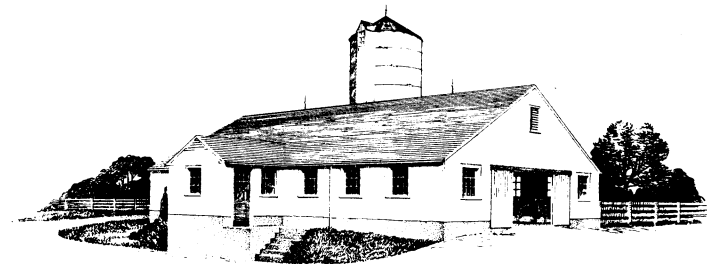
Working drawings for all other barn plans shown in this publication are complete in themselves but may be built of materials other than those shown by ordering the appropriate detail sheets.

BARN TYPES

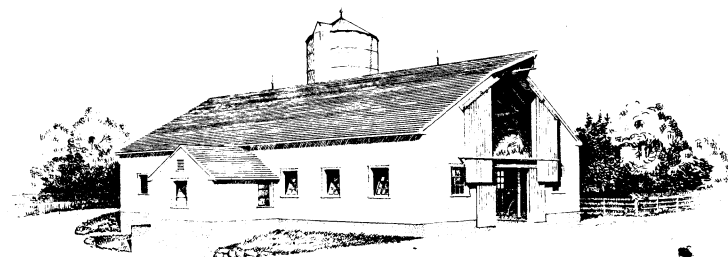
The following are the roof types for barns for which the detail sheets shown on pages 20 to 44 are available: These construction details are intended for use with floor plans for horse barn, drawing No. 5640; general barn, No. 5635; and dairy barns, drawings Nos. 5628, 5629, and 5630.

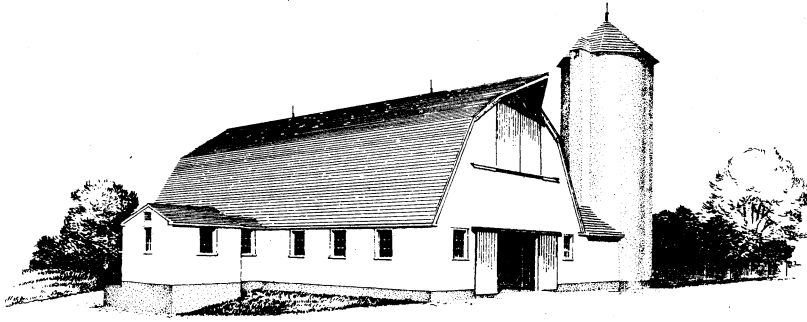
GABLE ROOF, 1-story; 34-, 36-, and 38-foot widths.—

This type of barn has a trussed roof and is for use where no mow is needed for the storage of hay or feed. It is an economical barn to build and has the added advantage that no posts are needed in the stable. Walls may be built of frame or masonry.

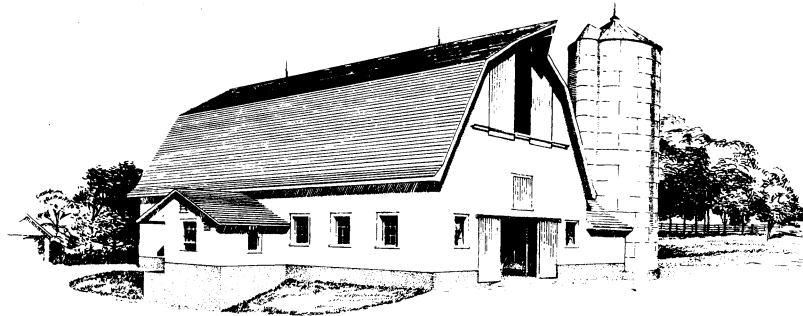


GABLE ROOF, 1½-story; 36-foot width.—This type of barn is satisfactory where only small quantities of loose hay are needed or when baled hay is used. It has the disadvantage of requiring posts in both stable and mow. Wall may be built of frame or masonry.

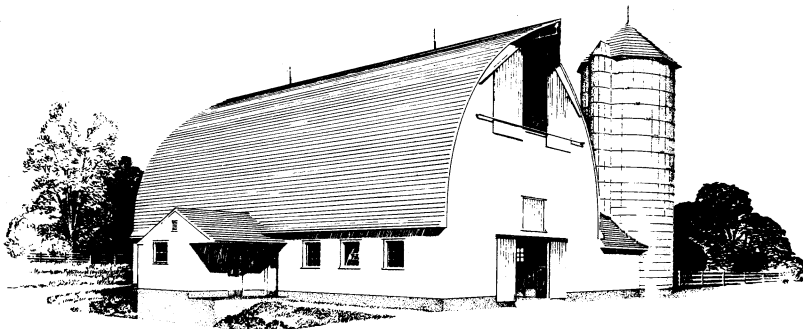




GAMBREL ROOF, 1½-story; 34-, 36-, and 38-foot widths.—This type of barn provides storage for reasonable quantities of loose hay. Its braced rafter framing does not require posts in the mow. Posts in the stable, however, are necessary. Walls may be built of frame or masonry.



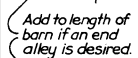
GAMBREL ROOF, 2-story; 34-, 36-, and 38-foot widths.—This type of barn is similar to the 1½-story gambrel-roof barn, except that the side walls extend above the mow floor, giving greater hay-storage capacity. Walls may be built of frame or masonry. If this type is to be built in a hurricane area it is recommended that details on drawing No. 5639 be followed.



GOTHIC ROOF, 2-story; 34-, 36-, and 38-foot widths.—The gothic roof provides very large mow space free from posts or other obstructions. Walls of this barn may be built of frame or masonry. If it is to be built in a hurricane area it is recommended that details on drawing No. 5690 be followed.

(S) 17M _B HLMV _B		(S) 17M _B HLMV _B
SM	LAI	MEI

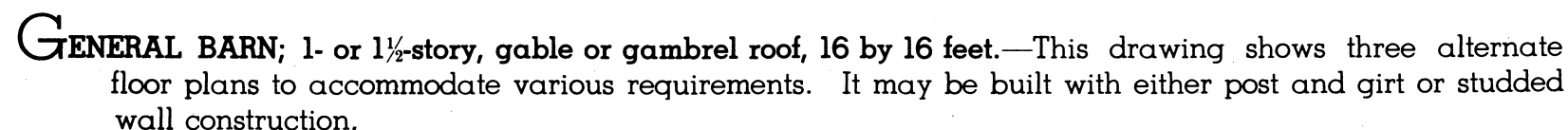
SHEETS COMPRISING SETS OF DRAWINGS

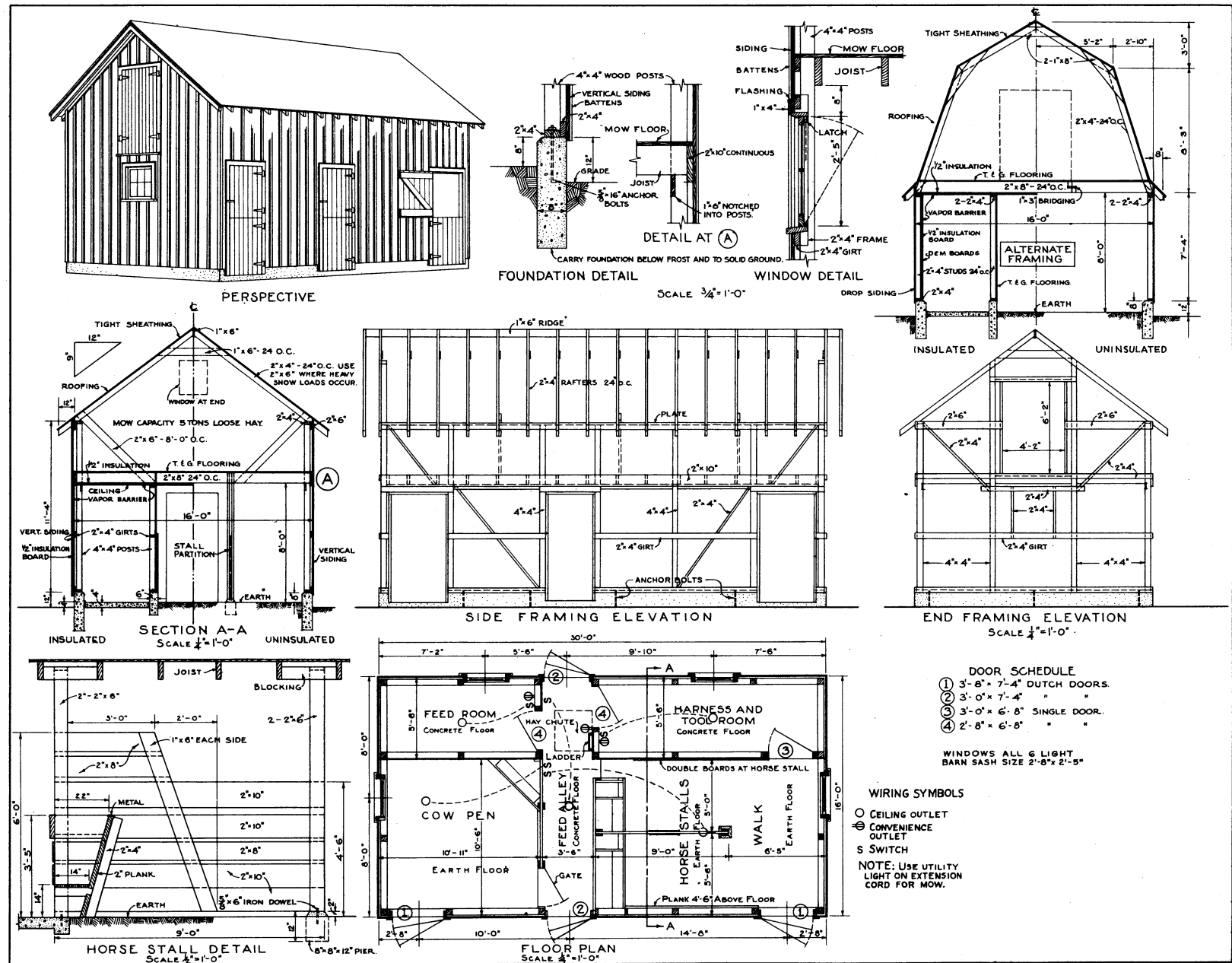


SIZE	STALL WIDTH W	TOTAL LENGTH FOR (A) PORTION OF BARN (INSIDE DIMENSION) DIMENSIONS INCLUDE ONE END ALLEY NUMBER OF COW STALLS IN LONGEST LINE										WINDOW AND COLUMN SPACING											
		4		5		6		7		8		9		10		11		12		B	C	D	E
LARGE	4' - 4"	22'-4"	26'-8"	31'-0"	35'-4"	39'-8"	44'-0"	48'-4"	52'-8"	57'-0"	8'-8"	6'-8"	7'-0"	13'-0"									
	4' - 0"	21'-0"	25'-0"	29'-4"	33'-0"	37'-0"	41'-0"	45'-4"	49'-0"	53'-0"	8'-0"	6'-0"	7'-0"	12'-0"									
MEDIUM	3' - 8"	19'-8"	23'-4"	27'-0"	30'-8"	34'-4"	38'-0"	41'-8"	45'-4"	49'-0"	7'-4"	5'-8"	6'-8"	11'-0"									
SMALL	3' - 6"	19'-0"	22'-6"	26'-0"	29'-6"	33'-0"	36'-6"	40'-0"	43'-6"	47'-0"	7'-0"	5'-4"	6'-8"	10'-6"									

*All dimensions are to inside face of outside walls.
For overall outside dimensions add thickness of outside walls.
For length of cow stall platforms S, for stall details
including gutter widths G and manger widths M see
drawing No.5661.
Cross out all plans but the one to be used.
Write in actual dimensions for A, B, C, D and E on
plan to be used.
Check all dimensions before starting work.*

12





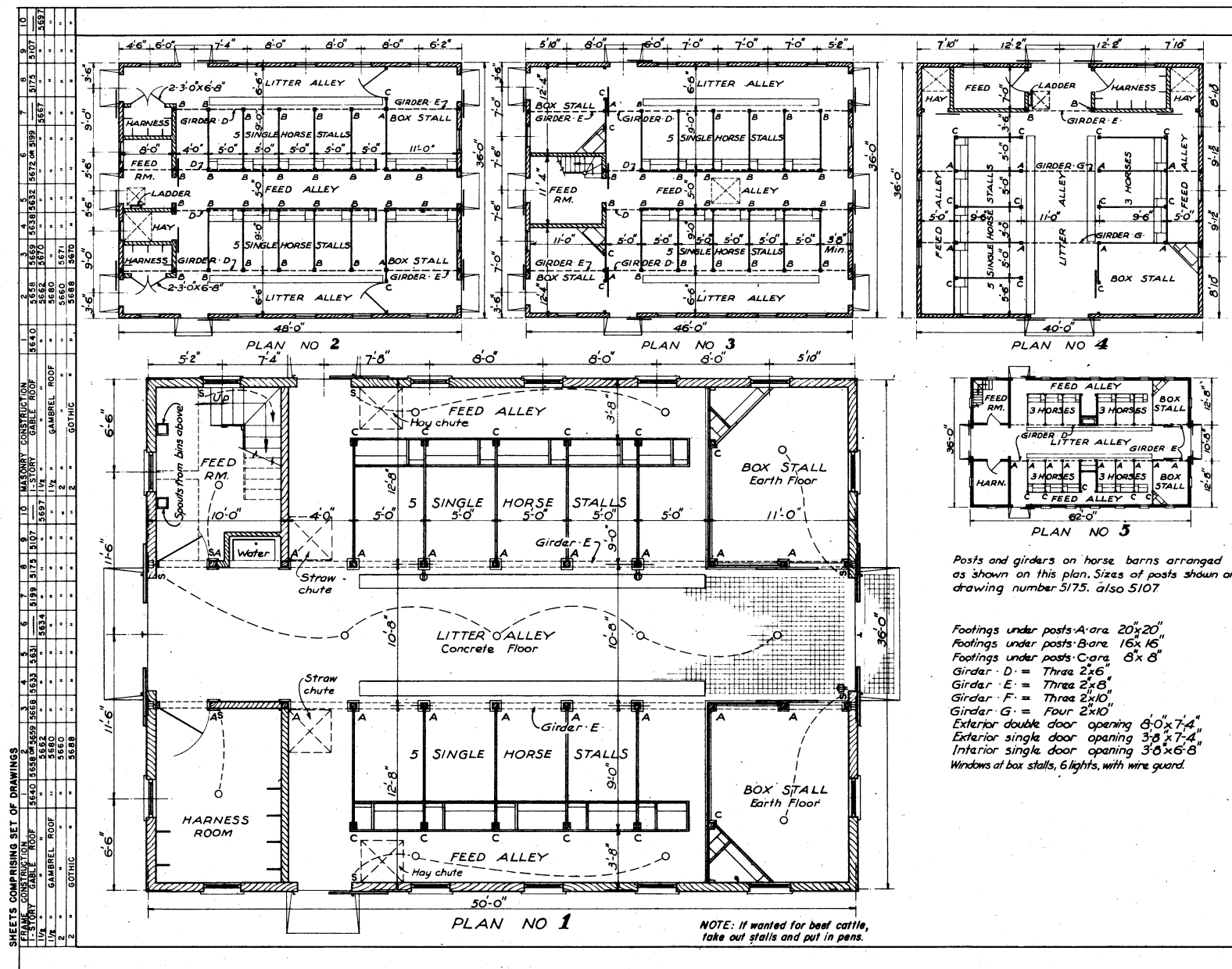
Additional sheets suggested: Nos. 5631; 5697.
Details for masonry walls: Drawing No. 5670.

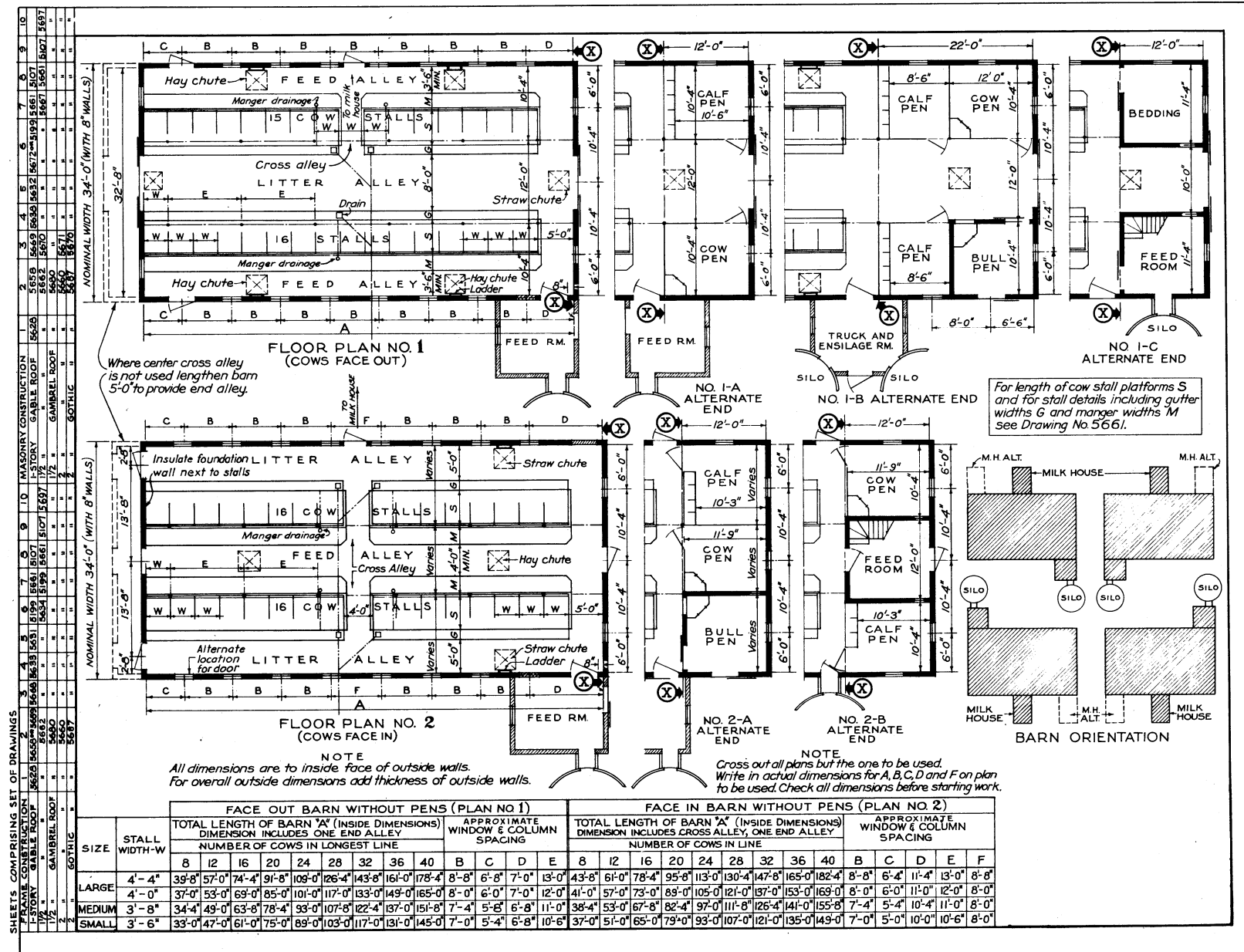
GENERAL BARN; 1½-story, gable or gambrel roof, 16 by 30 feet.—A practical barn for a small farm; will accommodate a cow and two horses. Mow capacity approximately 5 tons of loose hay. Walls may be built with post and girt construction or with conventional studding.



15

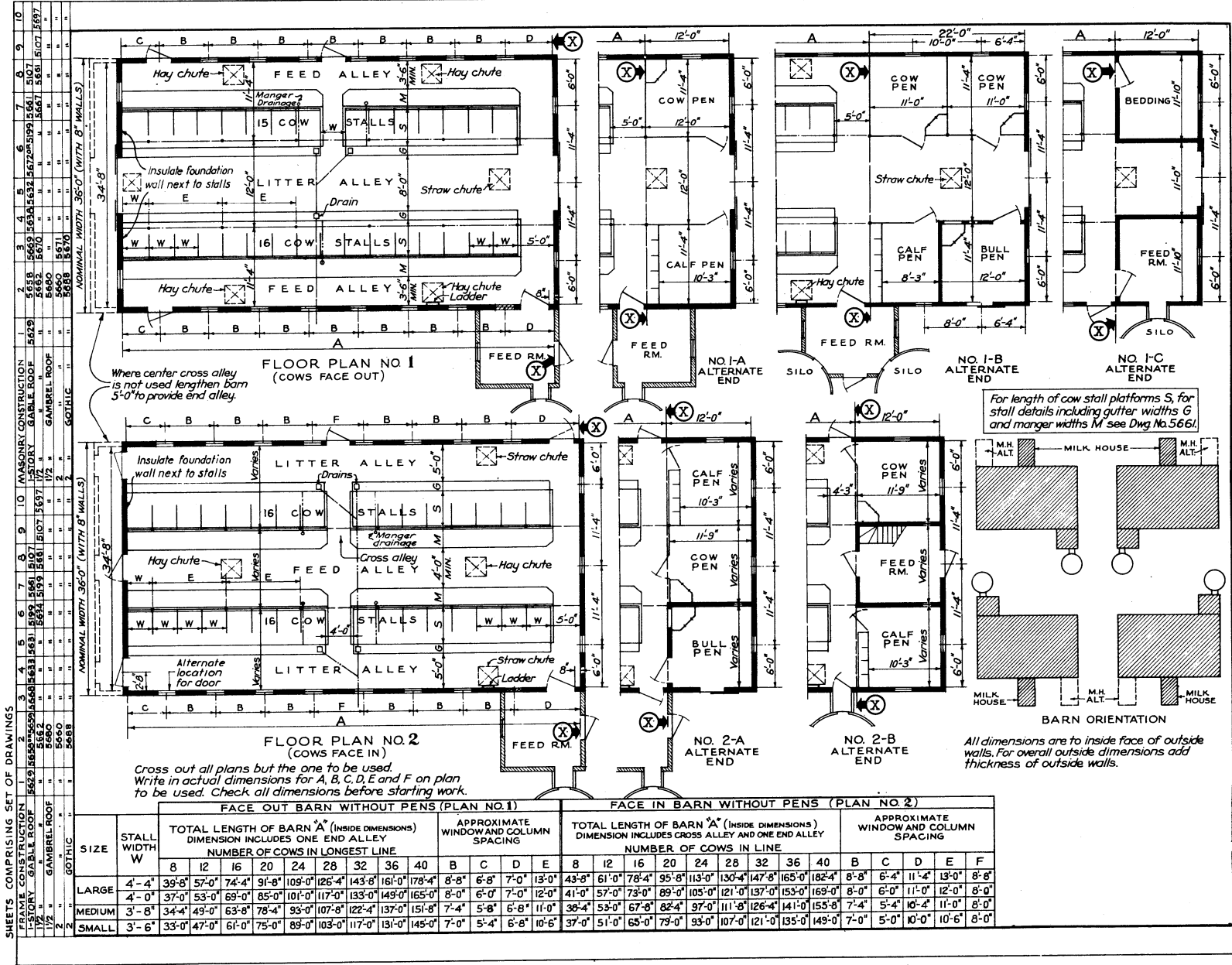
16





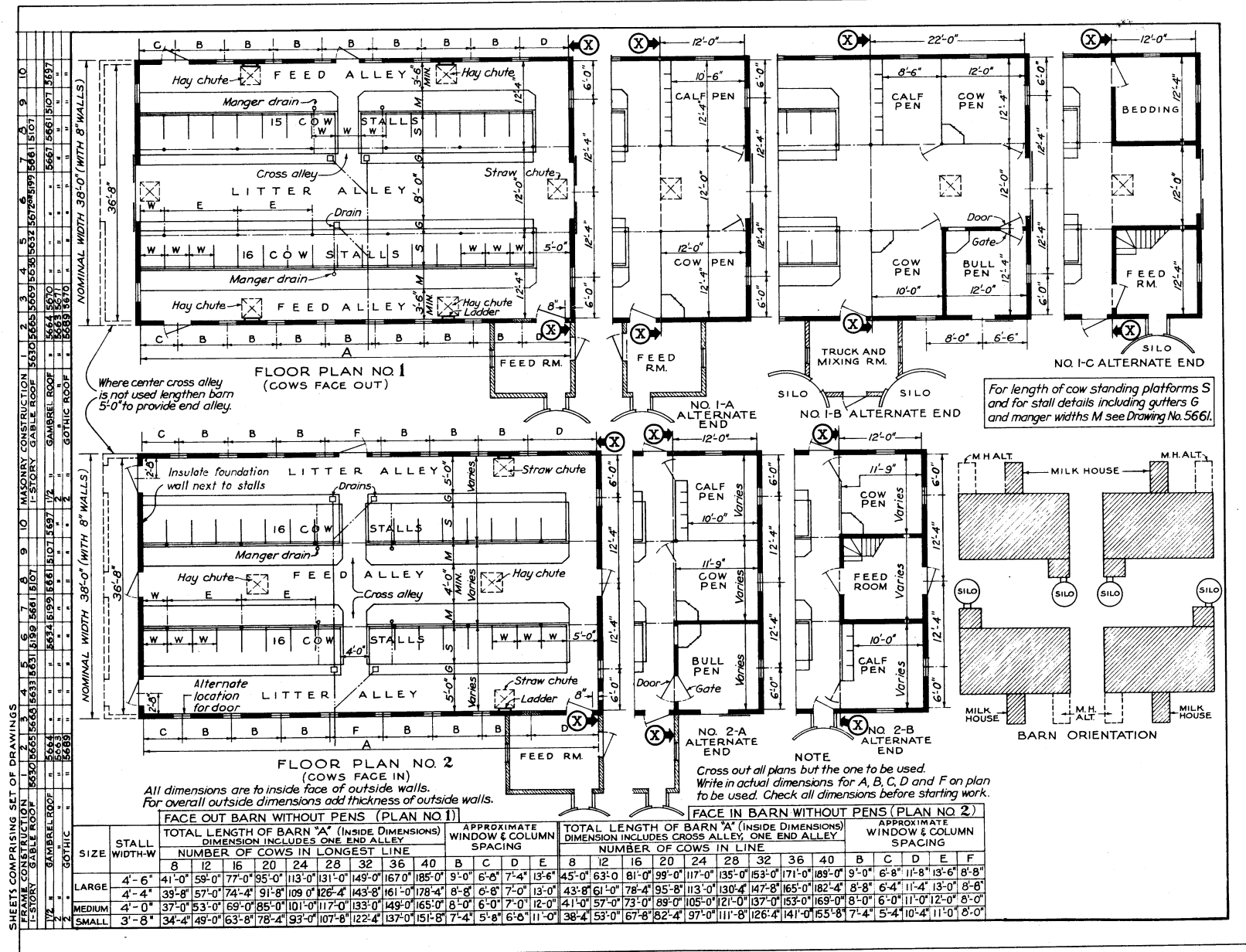
Detail sheets for use with these floor plans are shown on pages 20 to 44.

DAIRY-BARN PLANS; 34-foot width, optional length.—Designed for small cows, but is suitable for medium-sized cows where use of sweep-in mangers, barn cleaner, or litter carrier permits narrower alleys. Plans show face-in and face-out arrangements, with several pen and feed-room combinations.



Detail sheets for use with these floor plans are shown on pages 20 to 44.

DAIRY-BARN PLANS: 36-foot width, optional length.—This barn width is suitable for medium-sized cows needing stall platforms 4 feet 6 inches to 5 feet 4 inches long or for larger cows where the use of sweep-in mangers, barn cleaner, or litter carrier permits narrower alleys.

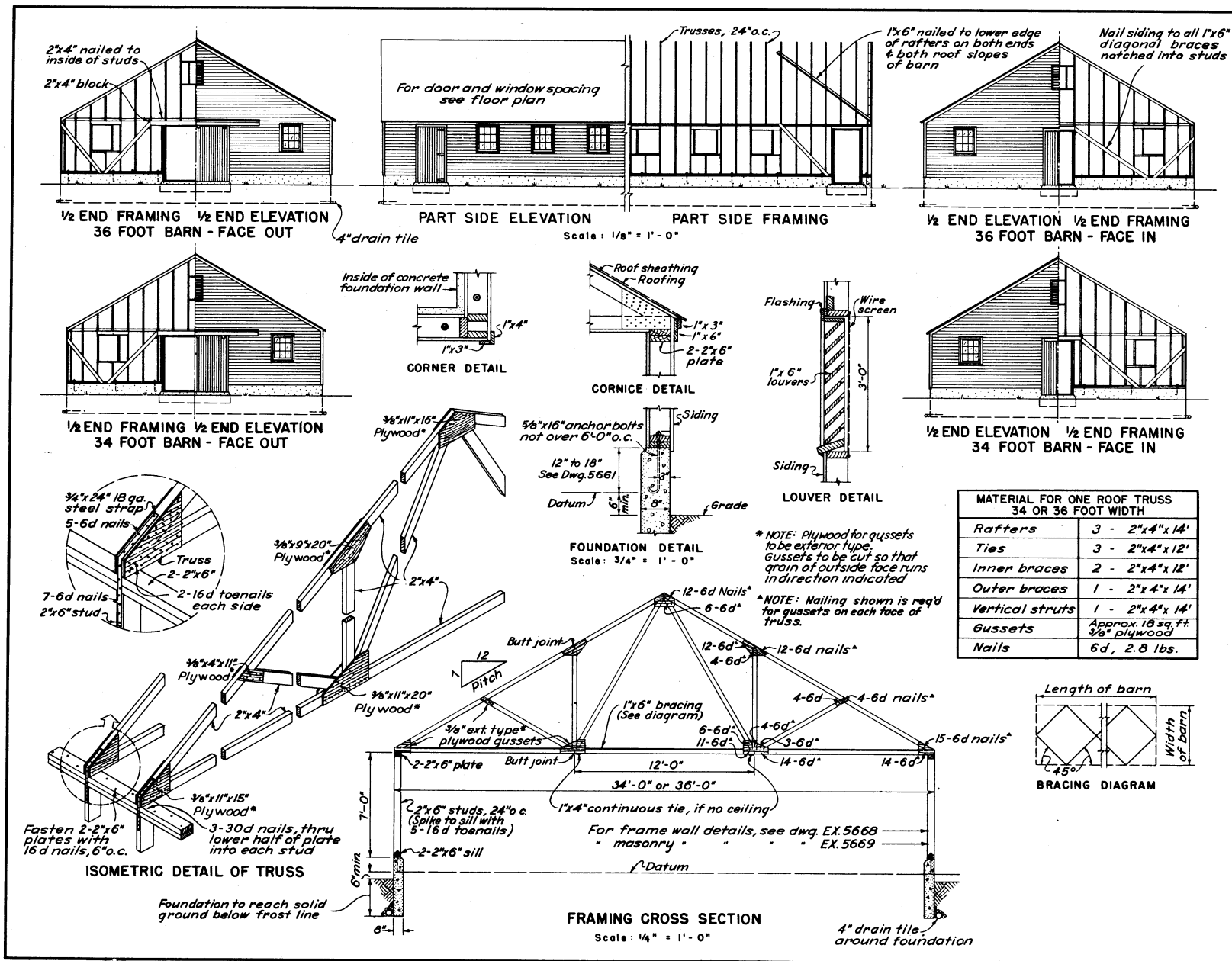


Detail sheets for use with these floor plans are shown on pages 20 to 44.

DAIRY-BARN PLANS; 38-foot width, optional length.—This barn width is suitable for large cows needing stall platforms 5 feet 6 inches to 6 feet long. Drawing shows plans for both face-in and face-out arrangements, with several pen and feed-room combinations.

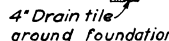
DRAWING No.
5658
(1 sheet)

Not illustrated:
DRAWING No.
5665
(1 sheet)
For barns 38
feet wide

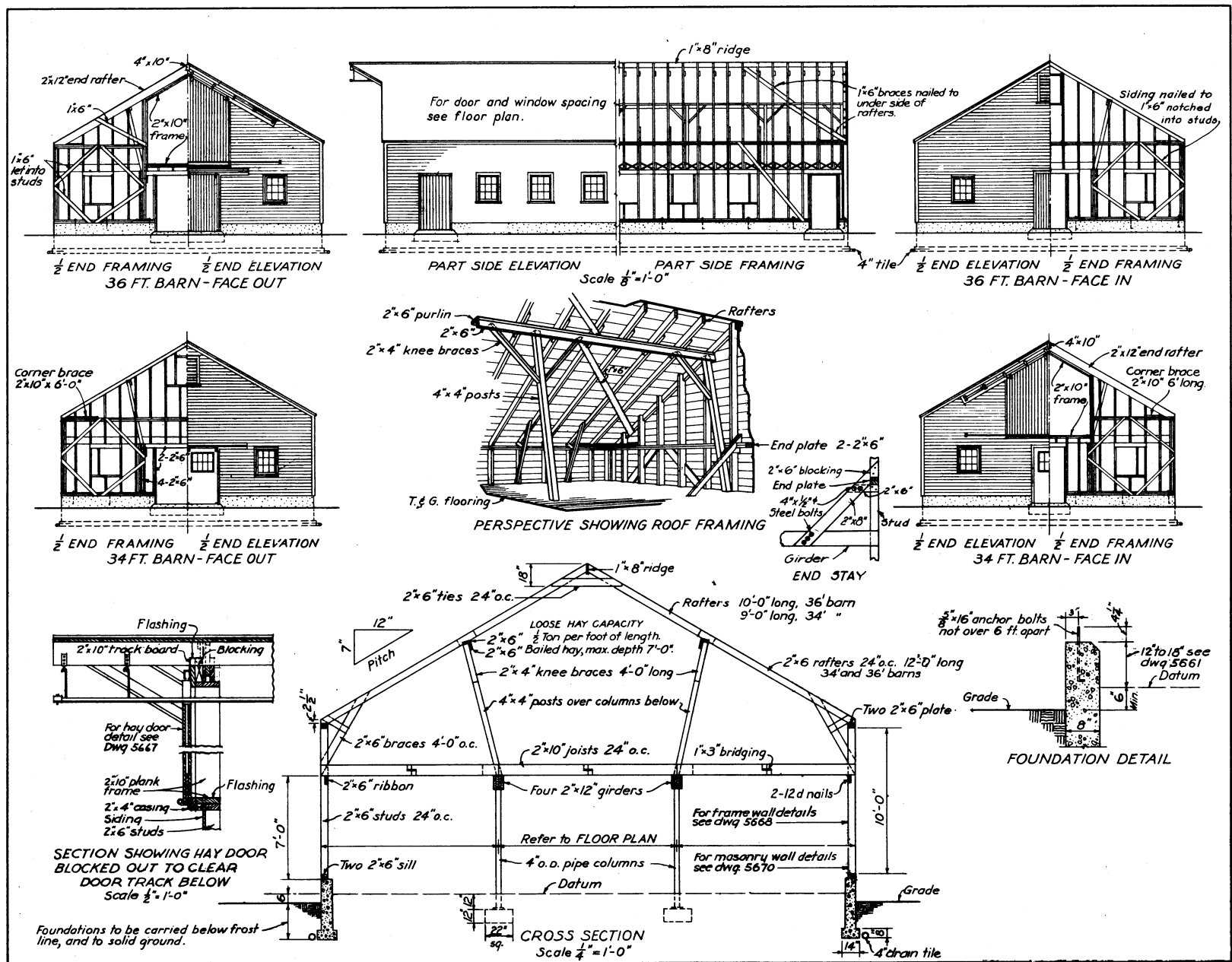


Details for masonry walls are shown on drawing No. 5669.

GABLE-ROOF FRAMING; 1-story, for barns 34 and 36 feet wide.—The roof is supported by lightweight trusses built with gussets of exterior type plywood. Trusses are built on the ground and hoisted into place. There are no posts in the stable.

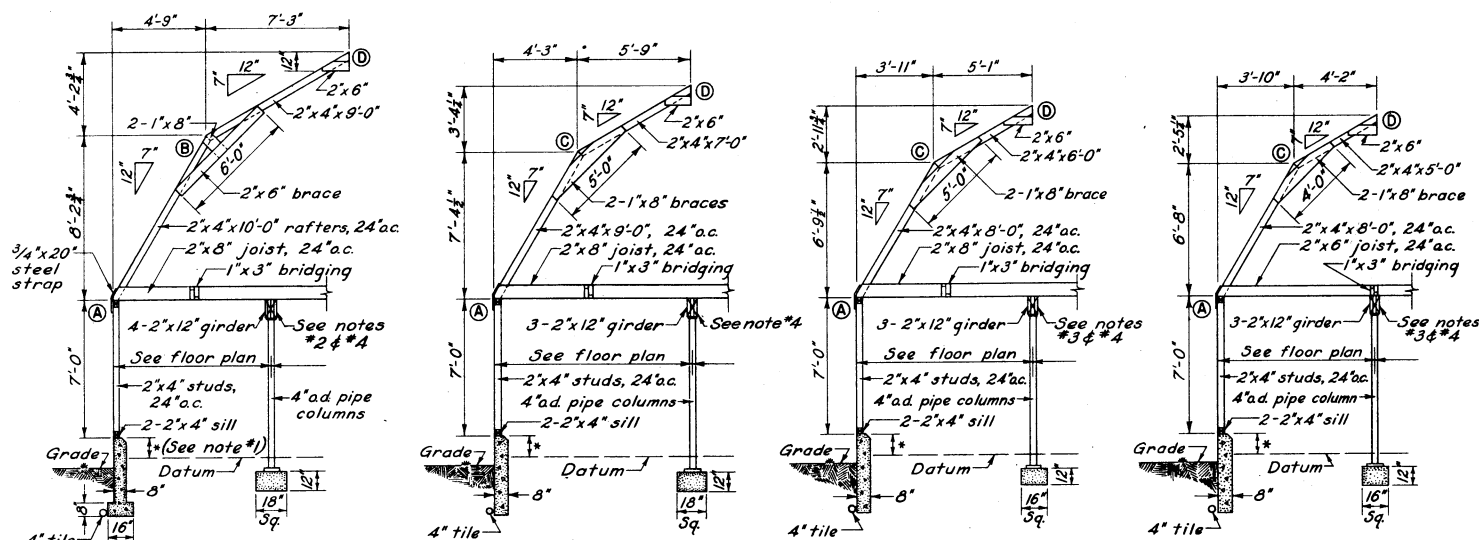


21



Details for masonry walls are shown on drawing No. 5670.

GABLE-ROOF FRAMING; 1 1/2-story, for barns 34 and 36 feet wide.—This type of framing with posts and purlins provides some mow capacity but less than the gambrel or gothic-type roof. It has the disadvantage of requiring posts in the mow.



24'-0" BARN

LOOSE HAY - 0.31 TONS PER LIN. FT.
BALED HAY - MAXIMUM DEPTH 7 FT.

20'-0" BARN

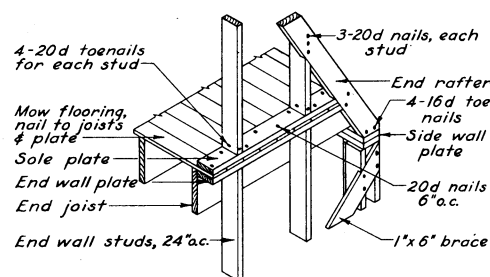
LOOSE HAY - 0.22 TONS PER LIN. FT.
BALED HAY - MAXIMUM DEPTH 6 FT.

18'-0" BARN

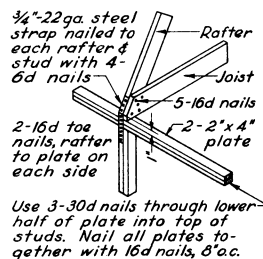
LOOSE HAY - 0.16 TONS PER LIN. FT.
BALED HAY - MAXIMUM DEPTH 5 FT.

16'-0" BARN

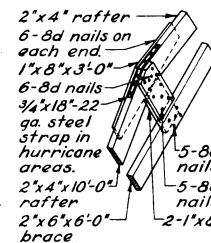
LOOSE HAY - 0.12 TONS PER LIN. FT.
BALED HAY - MAXIMUM DEPTH 5 FT.



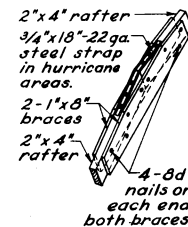
TYPICAL FRAMING FOR END WALLS



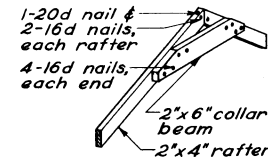
DETAIL A



DETAIL B



DETAIL C



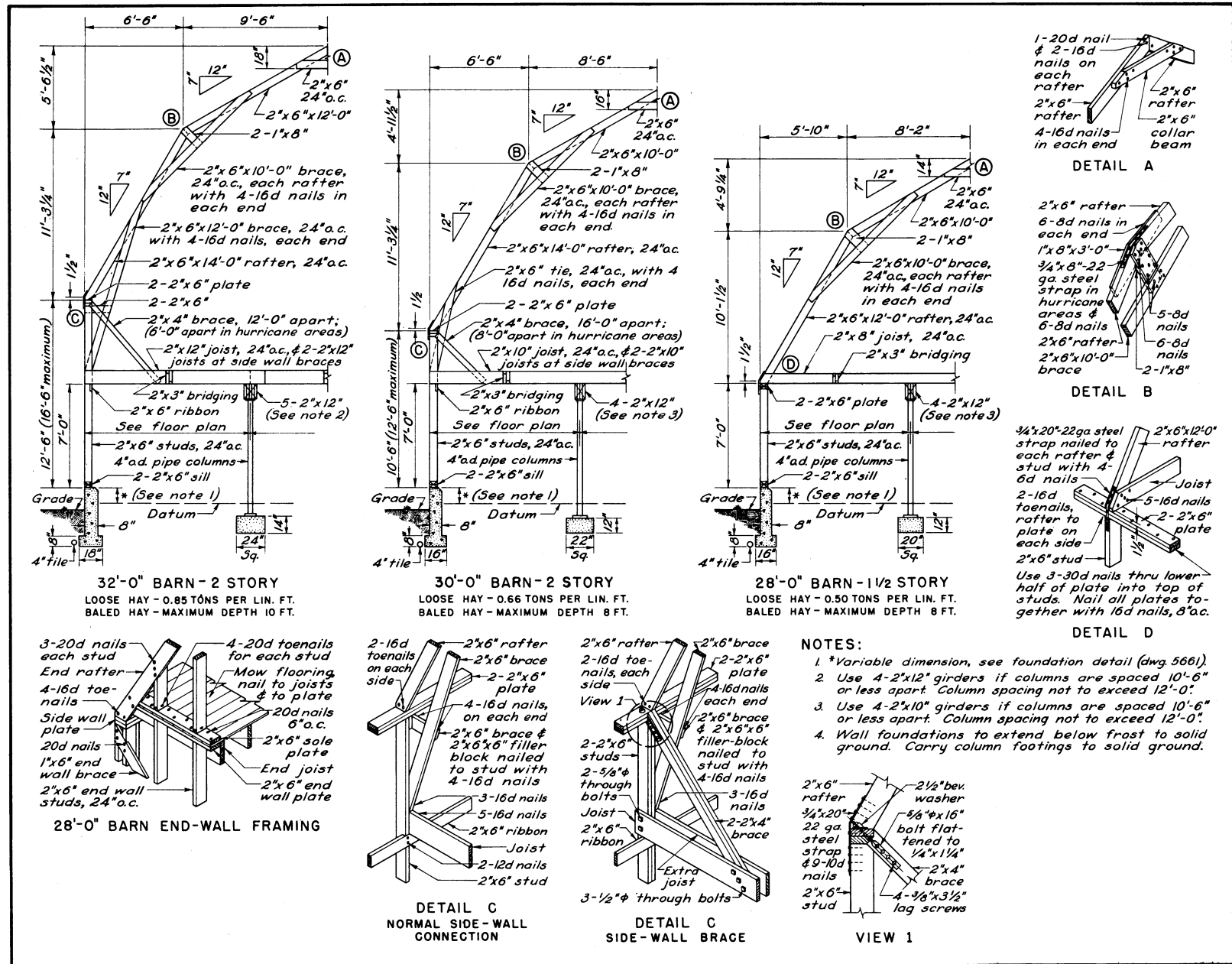
DETAIL D

- NOTES: 1. *Variable dimension, see foundation detail (dwg. 5661)
2. Use 3-2"x12" girders if columns are spaced 11'-0" or less apart.
3. Use 3-2"x10" girders if columns are spaced 10'-6" or less apart.
4. Column spacing not to exceed 12'-0".

5. Where center girder is omitted, use 2"x12" joists spaced 24" a.c. for 16'-0" barn; & 2"x10" joists spaced 12" a.c. for 18'-0" barn.
6. Wall foundations to extend below frost to solid ground. Carry column footings to solid ground.

GAMBREL-ROOF FRAMING; 1½-story, for barns 16 to 24 feet wide.—This braced rafter framing provides clear storage space in the mow without interference from posts. Capacities of loose hay range from about 0.12 tons per foot of length for the 16-foot width to 0.31 tons for the 24-foot width.

Details for masonry walls are shown on drawing No. 5670.

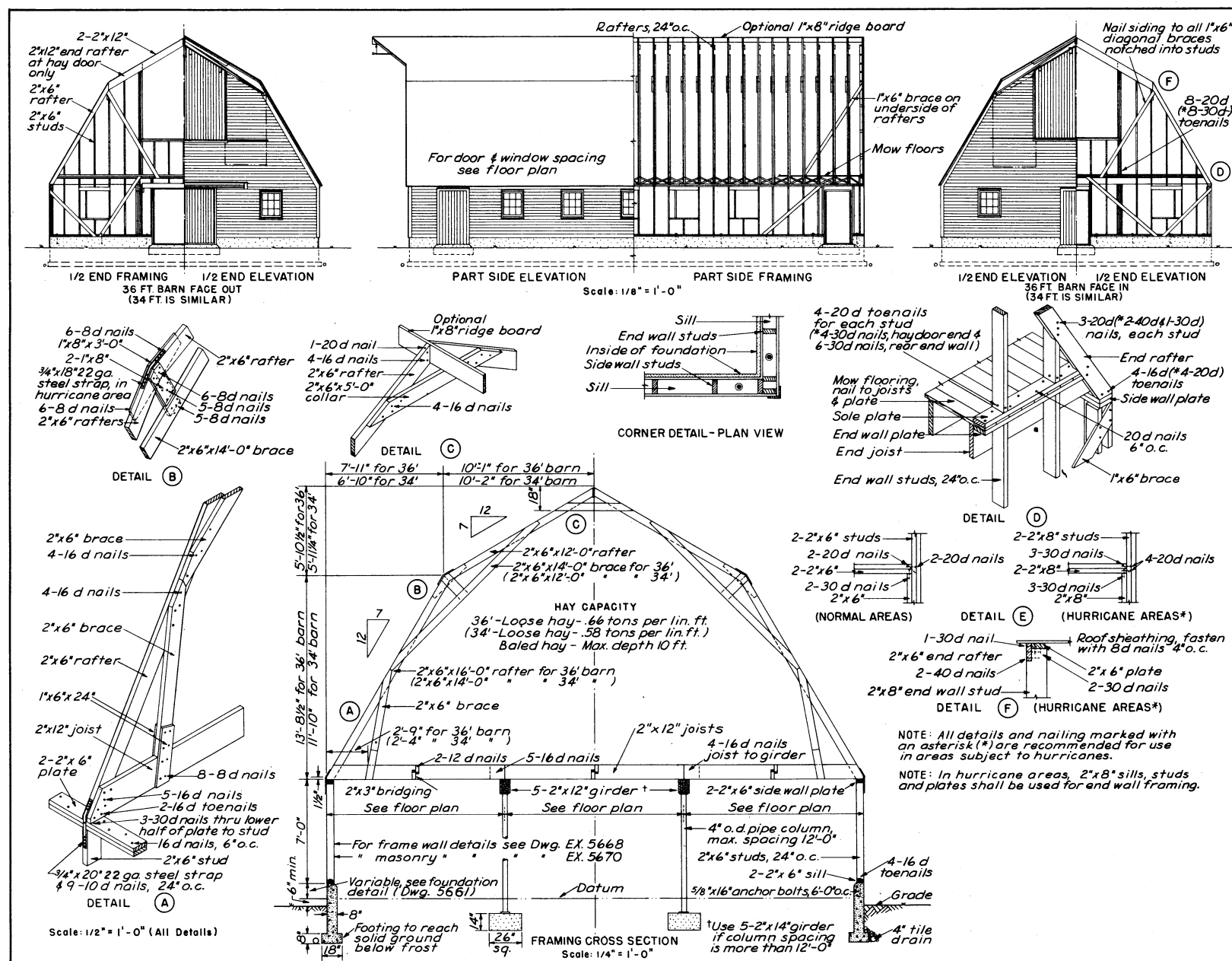


Details for masonry walls are shown on drawings No. 5670, 1 1/2-story barns; No. 5671, 2-story barns.

GAMBREL-ROOF FRAMING; 1 1/2- and 2-story, for barns 28 to 32 feet wide.—Braced rafter framing provides for clear mow space. Capacities: 0.5 tons of loose hay per foot of length for 28-foot width; 0.66 tons for 30-foot width; 0.85 tons for 32-foot width.

DRAWING No.
5680
(1 sheet)

Not illustrated:
DRAWING No.
5664
(1 sheet)
For barns 38
feet wide;
capacity, 0.75
tons

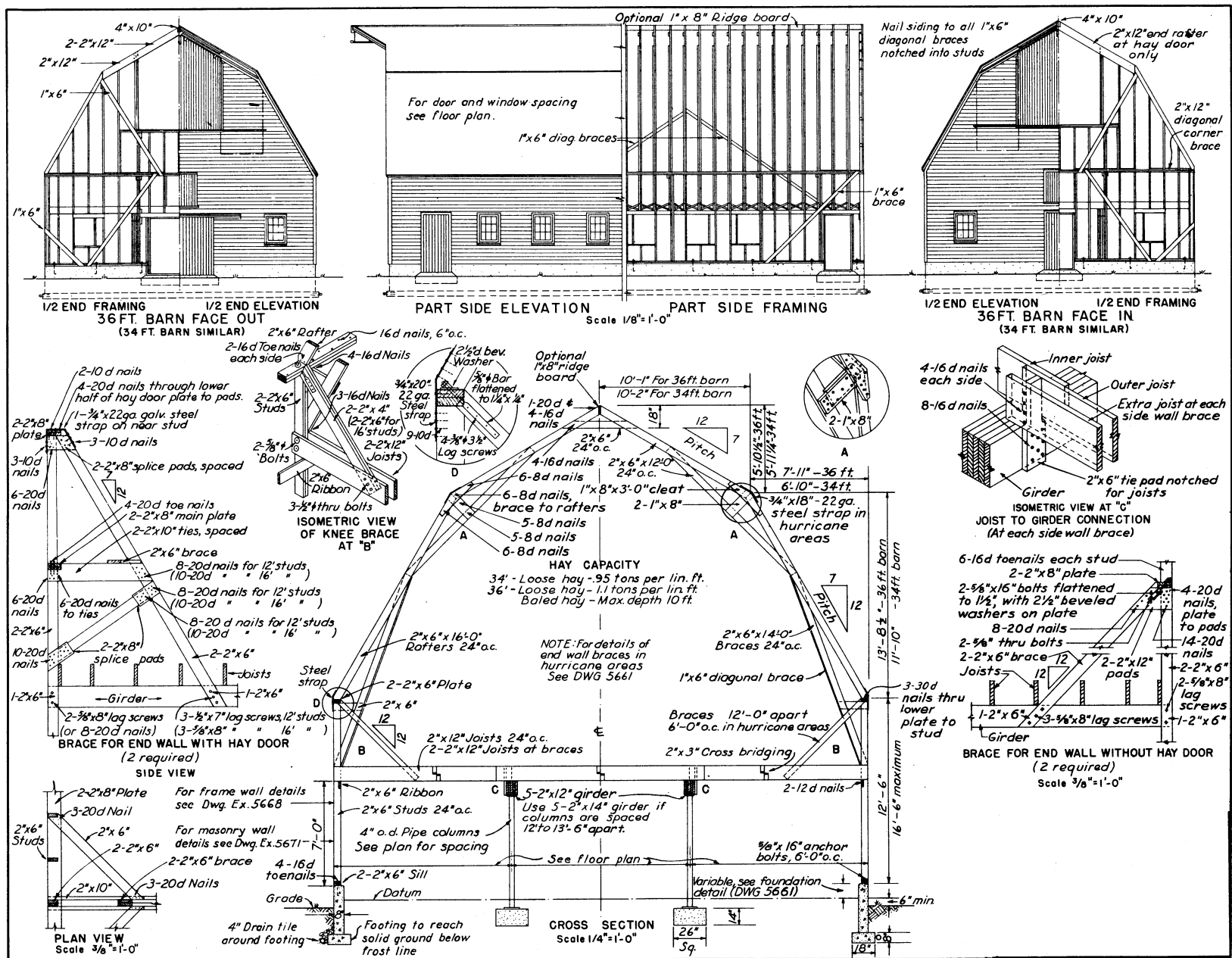


GAMBREL-ROOF FRAMING; 1½-story, for barns 34 and 36 feet wide.—Braced rafter framing provides a clear mow. Capacity: 34-foot width, 0.58 tons of hay per foot of length; 36-foot width, 0.66 tons.

(1 sheet)

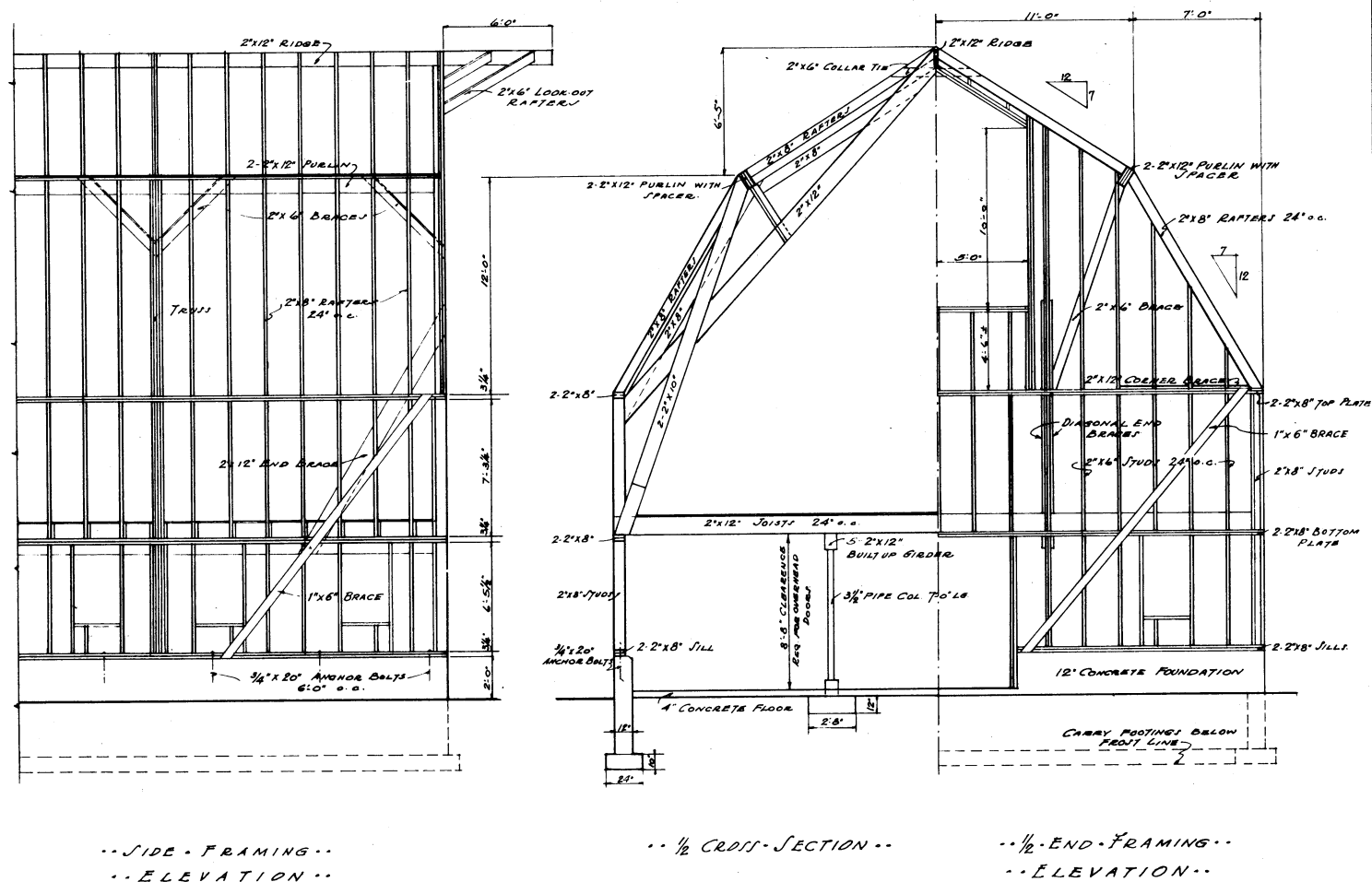
(1 sheet)

For barns 38 feet wide; capacity, 1.2 tons

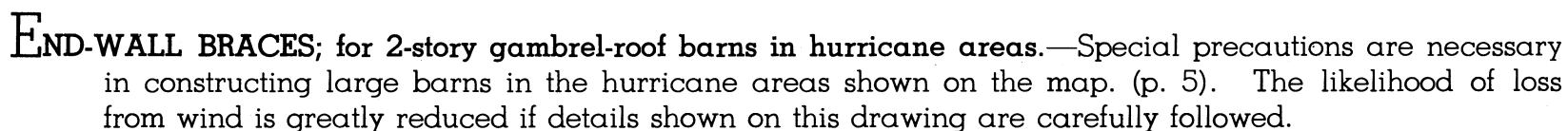


Details for masonry walls are shown on drawing No. 5671.

GAMBREL-ROOF FRAMING; 2-story, for barns 34 and 36 feet wide.—Large hay capacity is provided by extending side walls above the mow floor and using braced rafter framing. Capacity: 0.95 tons of loose hay per foot of length, 34-foot width; 1.1 tons for 36-foot width.



GAMBREL-ROOF FRAMING; 2-story, for barns 36 feet wide.—The Shawver Truss is occasionally used in institutional and other barns, where large quantities of loose hay are to be stored. Trusses may be built, using timber connectors, bolts, or common spikes, but joints must be well fastened.

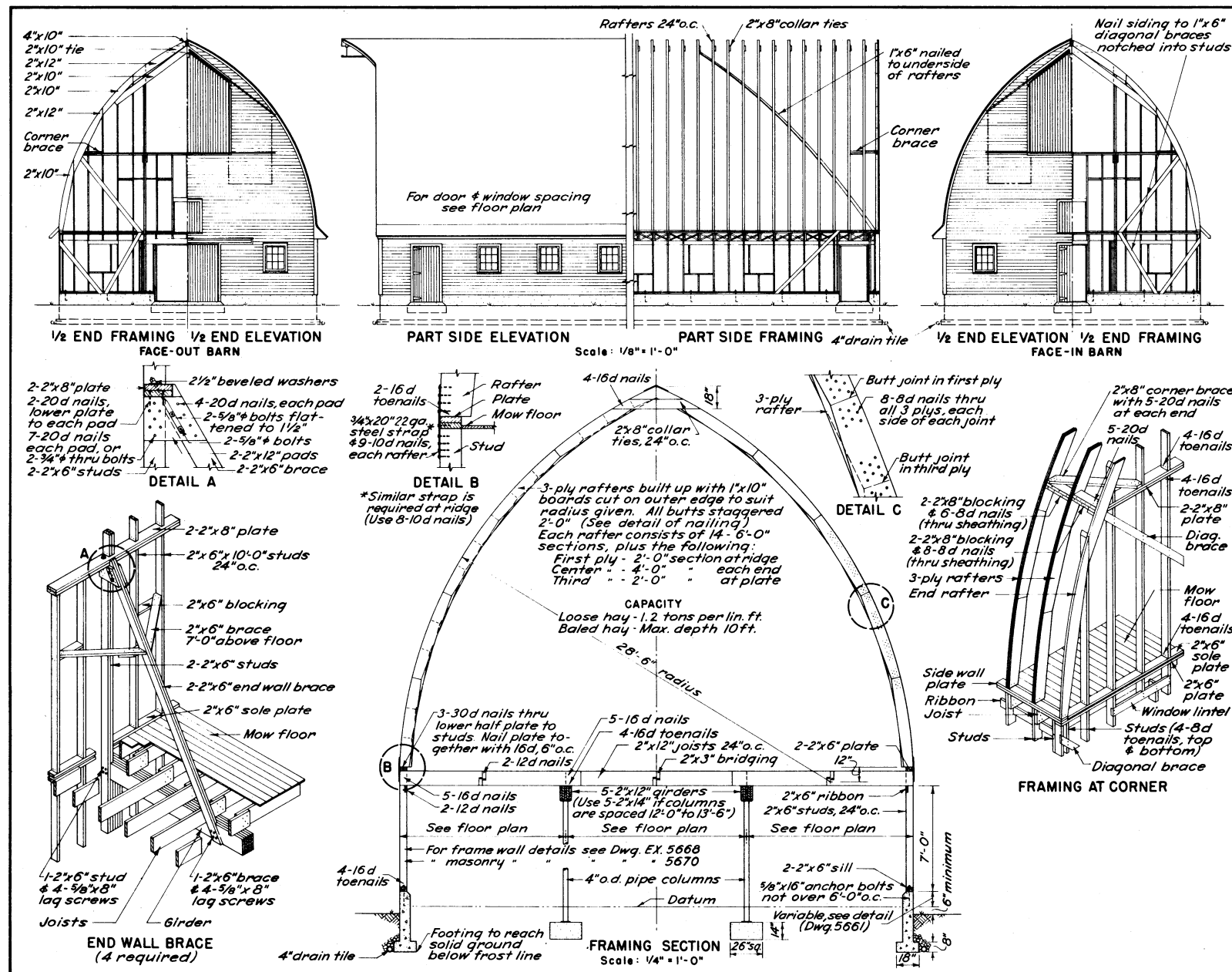


DRAWING No.
5687
(1 sheet)

Not illustrated:
DRAWING No.
5688
(1 sheet)

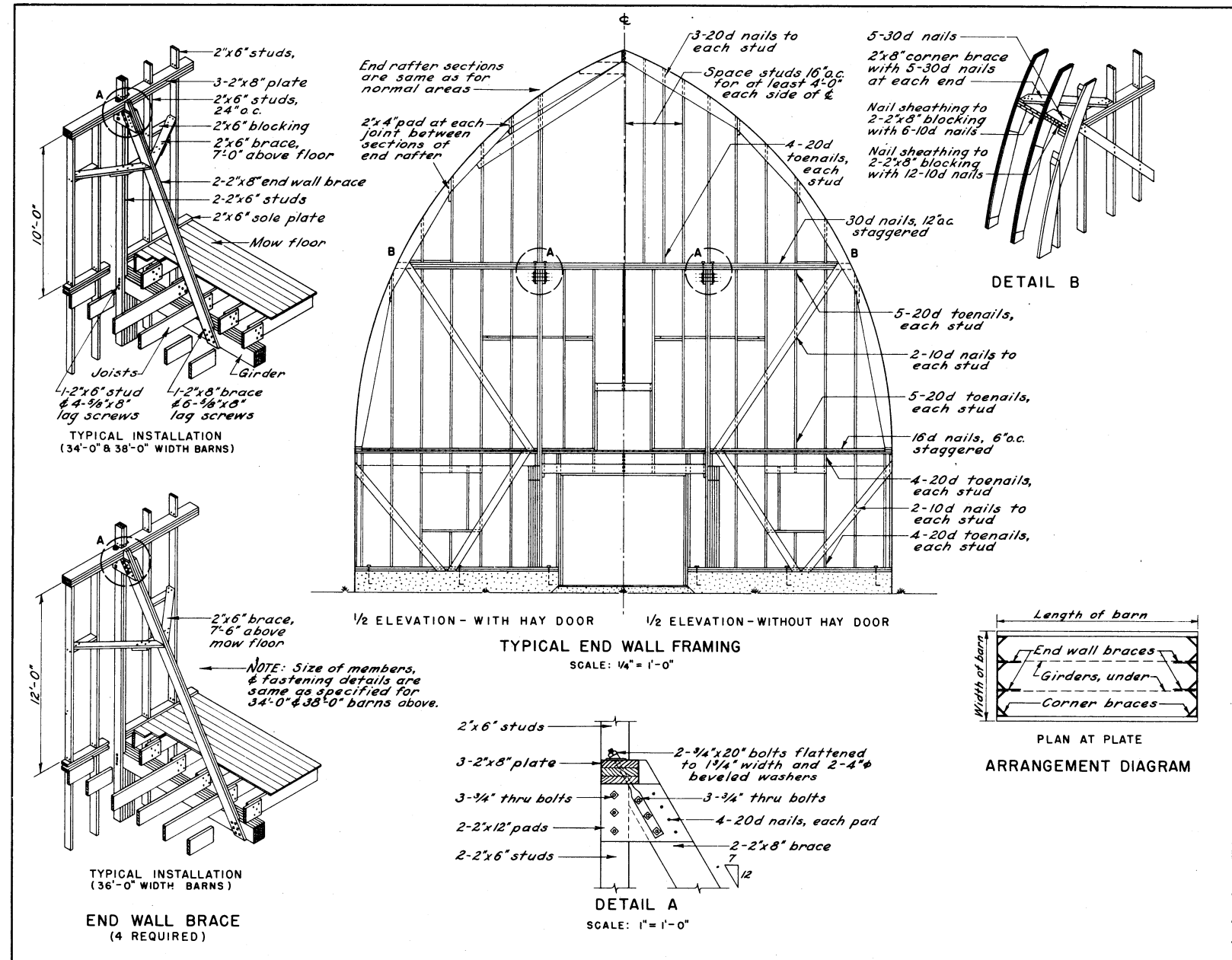
For barn 36
feet wide; ca-
pacity, 1.39
tons

DRAWING No.
5689
(1 sheet)
For barn 38
feet wide; ca-
pacity, 1.43
tons



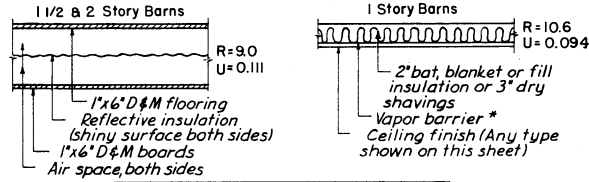
Details for masonry walls are shown on drawing No. 5670.

GOTHIC-ROOF FRAMING; 2-story, for barn 34 feet wide.—This type of roof may be framed with factory-built rafters or with the home-made rafters shown. Capacity: 1.2 tons of loose hay per foot of length.

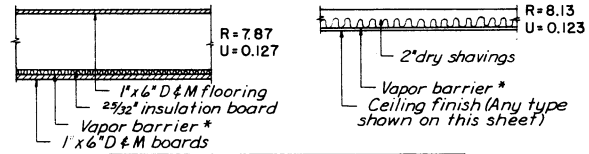


END-WALL BRACES; for 34-, 36-, and 38-foot wide gothic-roof barns in hurricane areas.—This drawing should be carefully followed in building a gothic-type roof barn in hurricane areas (see p. 5). Adequate end-wall bracing such as this is needed to transfer wind loads to the floor.

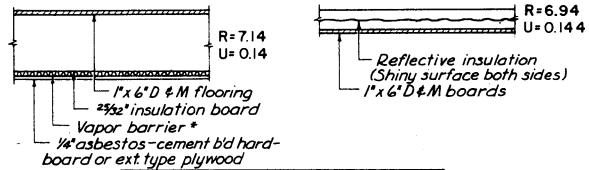
SUGGESTED CEILING SECTIONS



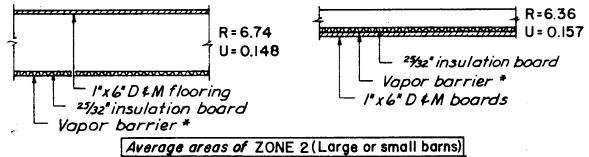
Cold areas of ZONE I (Large or small barns)



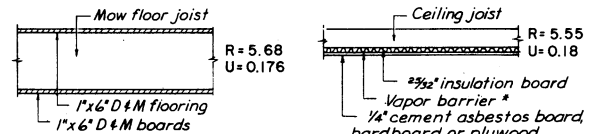
Average areas of ZONE I (Large or small barns)



Warm areas of ZONE I (Large or small barns)
Cold areas of ZONE 2 (Large or small barns)



Average areas of ZONE 2 (Large or small barns)

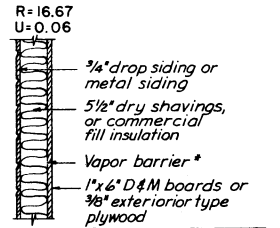


Warm areas of ZONE 2 (Large or small barns)

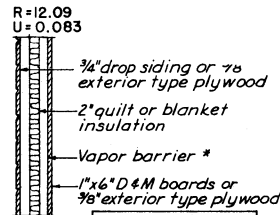
* Vapor barriers shall be either shiny-surfaced building paper infused with asphalt, or metal foil. When insulation board is used as inside finish, the vapor barrier shall be two coats of asphalt base aluminum-flake paint applied to the inside surface of the board.

NOTE: These wall and ceiling sections show types of construction suitable for the temperature zones shown on the map at right. In most cases the insulating value is minimum for the part of zone indicated.

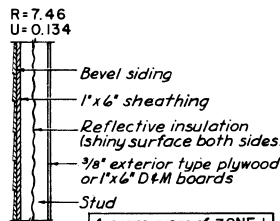
SUGGESTED WALL SECTIONS



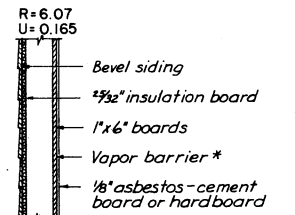
Cold areas of ZONE I (Large or small barns)



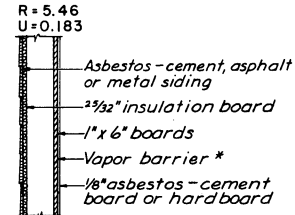
Cold areas of ZONE I (Large or small barns)



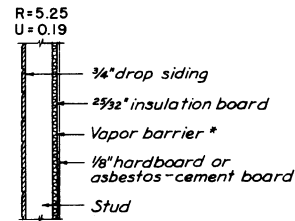
Average areas of ZONE I (Large or small barns)



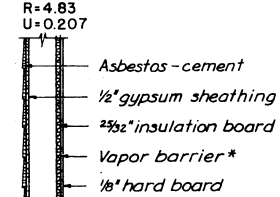
Cold areas of ZONE I (Large barns)
Warm areas of ZONE I (Small barns)
Cold areas of ZONE 2 (Large, Small)



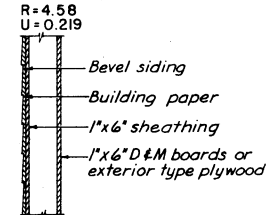
Average areas of ZONE I (Large barns)
Cold areas of ZONE 2 (Large barns)
Average areas of ZONE 2 (Small barns)



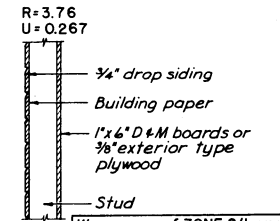
Average areas of ZONE I (Large barns)
Cold areas of ZONE 2 (Large barns)
Average areas of ZONE 2 (Small barns)



Warm areas of ZONE I (Large barns)
Average areas of ZONE 2 (Large barns)
Warm areas of ZONE 2 (Large, Small)

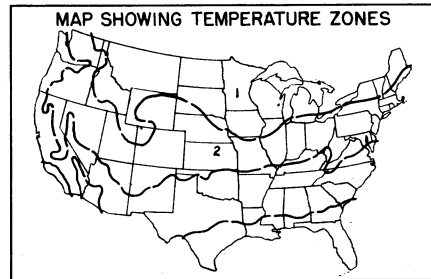


Warm areas of ZONE I (Large barns)
Average areas of ZONE 2 (Large barns)
Warm areas of ZONE 2 (Large, Small)

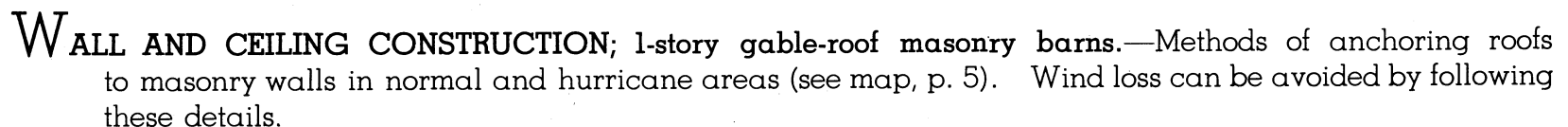


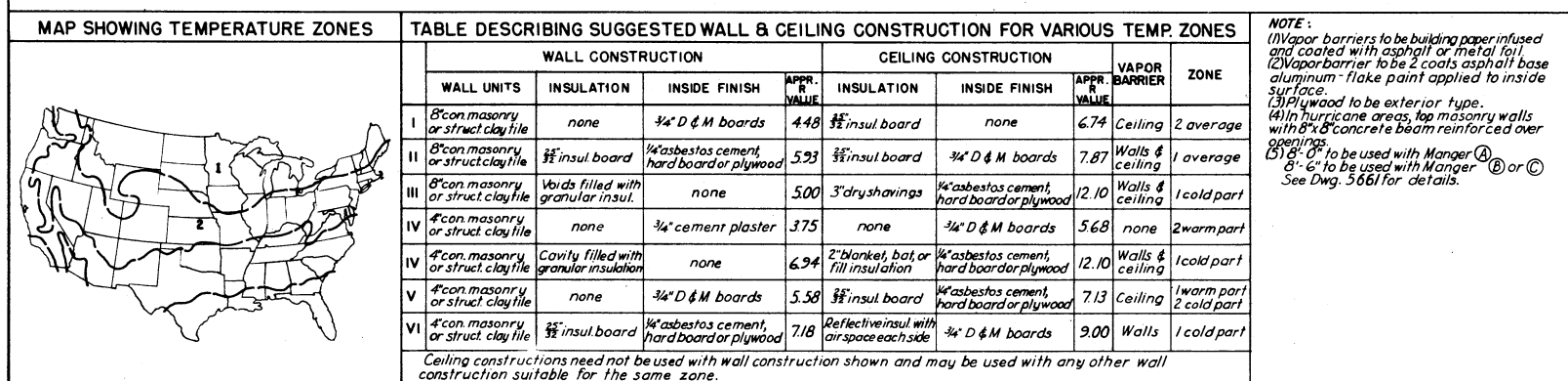
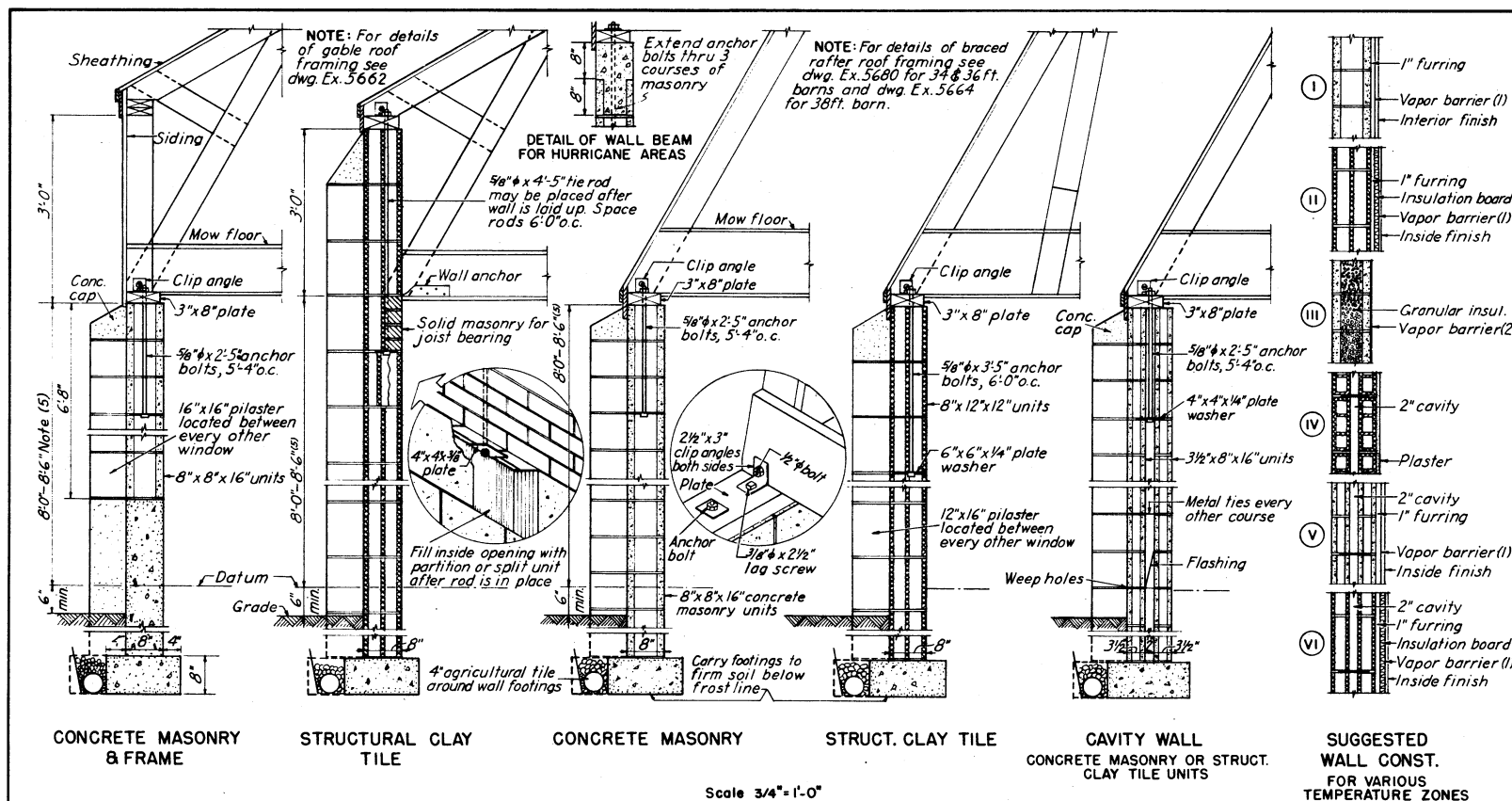
Warm areas of ZONE 2 (Large barns)

MAP SHOWING TEMPERATURE ZONES

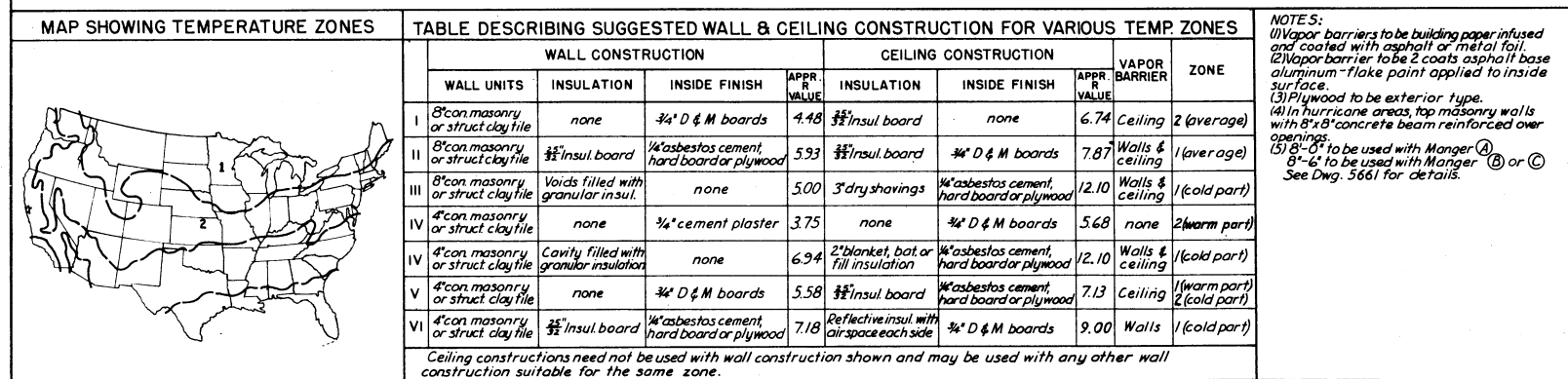


WALL AND CEILING CONSTRUCTION; wood-frame barns.—Suggested construction for various temperature zones in the Northeast. The types of construction shown for dairy barns are not the only ones suitable for this region, but they do show most of those in common use and their insulating values.

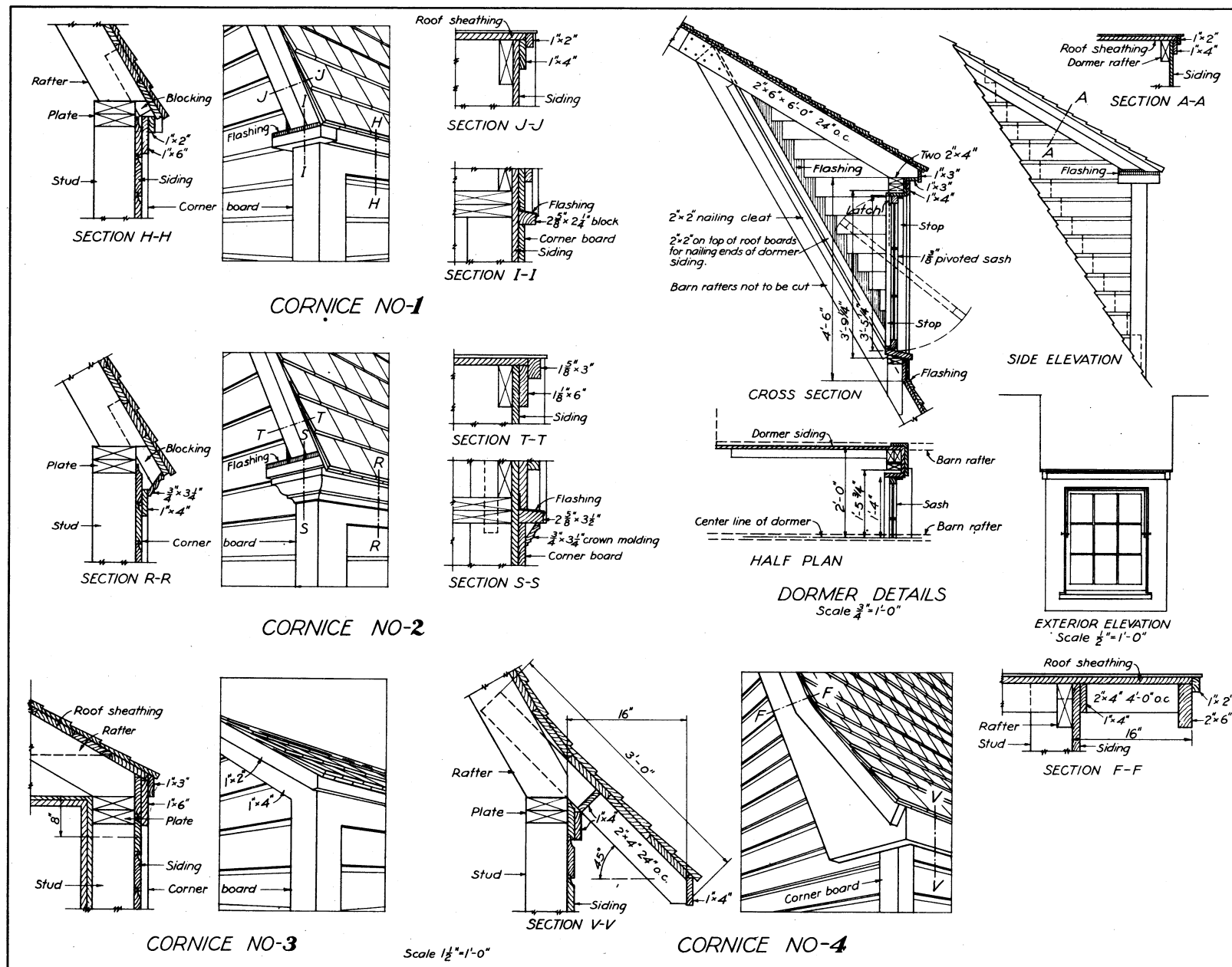




WALL AND CEILING CONSTRUCTION; 1½-story gable- and gambrel-roof and 2-story gothic roof masonry barns.—Methods of anchoring roofs to masonry walls in normal and hurricane areas (see map, p. 5). Danger of wind loss can be minimized by following these details.



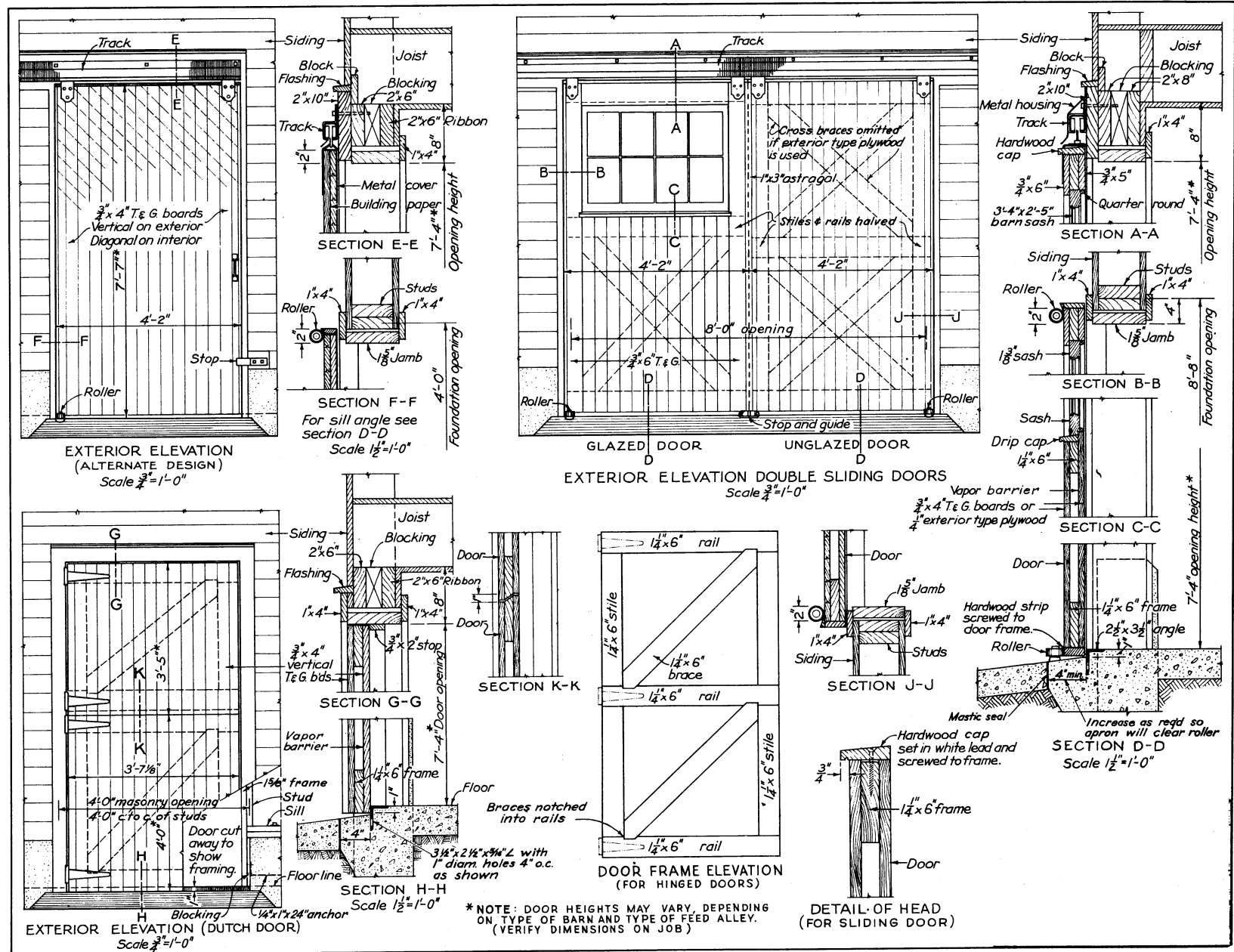
WALL AND CEILING CONSTRUCTION; 2-story gambrel-roof masonry barns.—Methods of anchoring roofs in normal and hurricane areas (see map, p. 5). Danger of wind loss can be minimized by following these details. Wall finishes and insulation suitable for dairy barns are also shown.



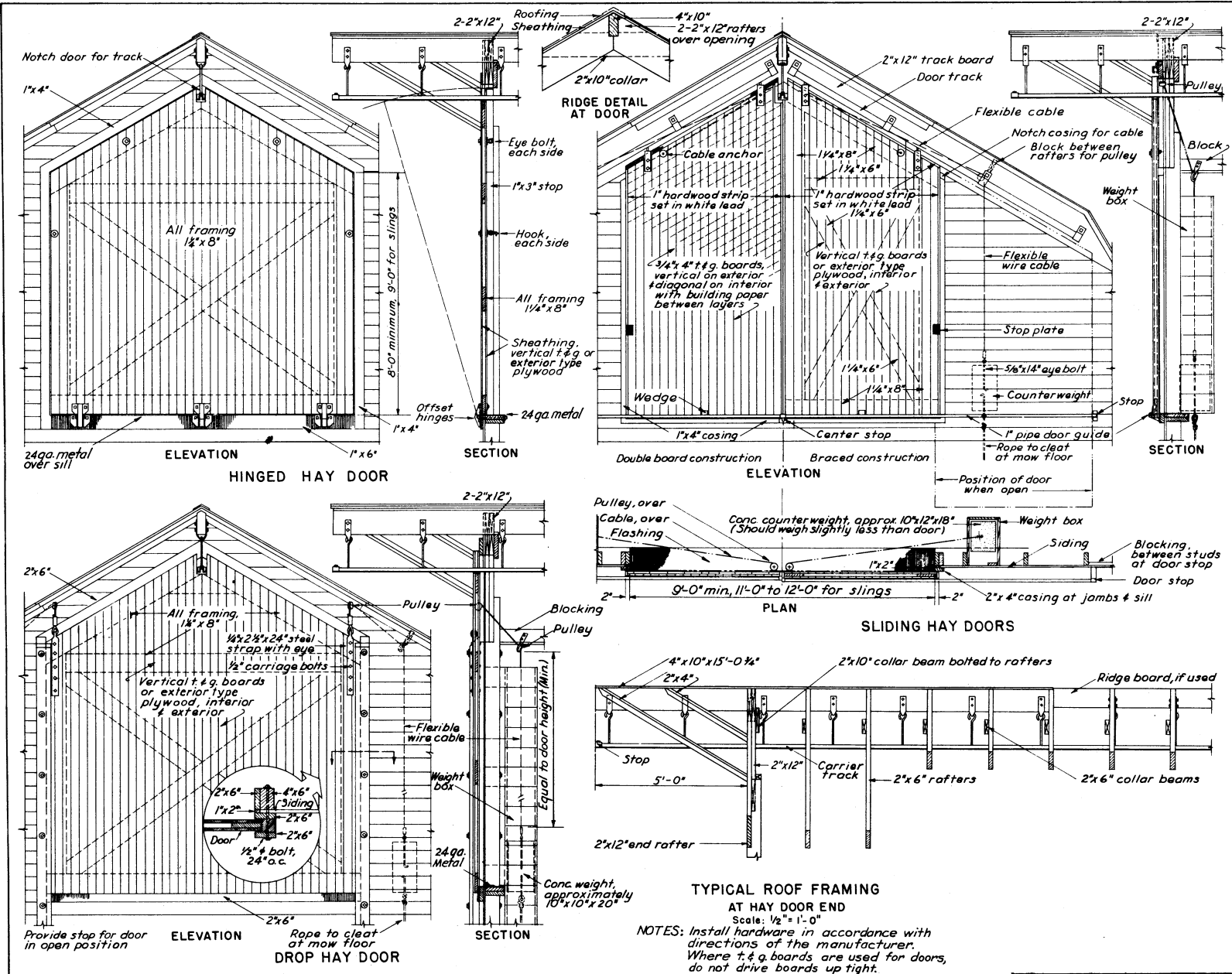
EAVES DETAILS; frame walls.—Several optional details are shown that are suitable for use with gambrel, gothic, and gable roofs, where the end walls above the stable are of frame construction.

DRAWING No.
5631
(1 sheet)

Not illustrated:
DRAWING No.
5632
(1 sheet)
For masonry
walls



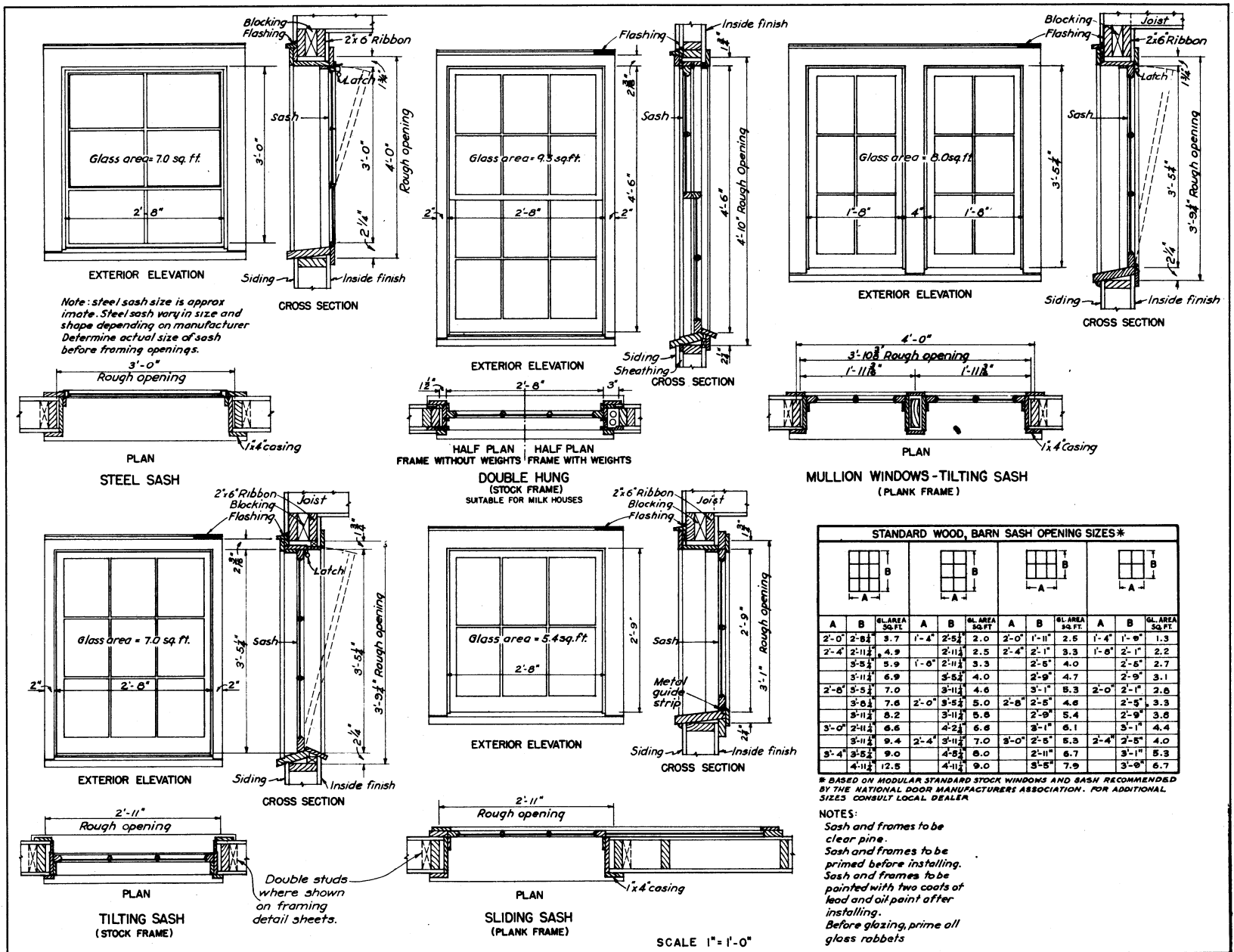
DOOR DETAILS; frame walls.—Conventional doors with exposed rails are very likely to rot out quickly; doors with smooth surfaces on both sides reduce to a minimum rotting caused by moisture either from rain or condensation. Doors may be surfaced with wood, exterior-type plywood, or metal.



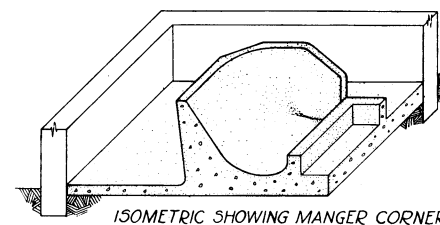
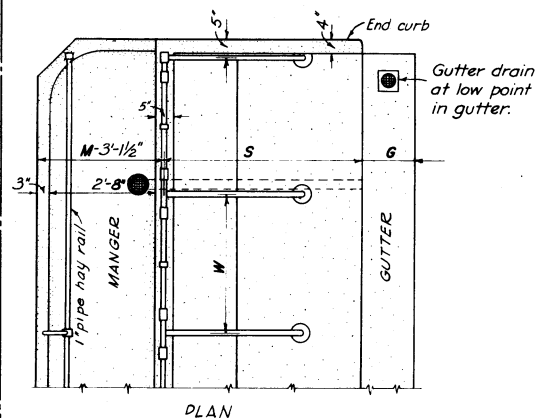
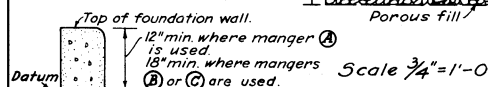
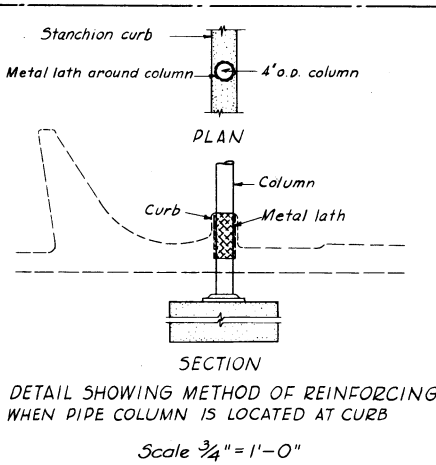
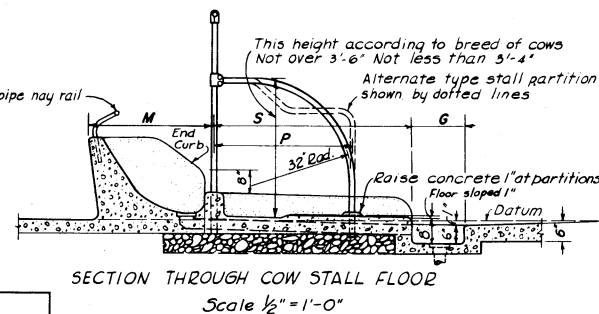
HAY-DOOR DETAILS; frame walls.—These doors are unlikely to rot, because they have no exposed rails to collect moisture. They are strong, easy to build, and may be surfaced with wood, exterior-type plywood, or metal. For use where the end walls of the mow are of wood.

DRAWING No.
5633
(1 sheet)

Not illustrated:
DRAWING No.
5638
(1 sheet)
For masonry
walls



WINDOW DETAILS; frame walls.—Both stock frames that can be purchased and plank frames to be made on the job are shown for use with barn sash. A table of stock sash sizes is given to assist in selection of sash with the proper glass area for stables.



BREED	*WIDTH - W	LENGTH - S		
		SMALL	MEDIUM	LARGE
Holstein-Friesian	4'-0" to 4'-6"	5'-0"	5'-4"	6'-0"
Brown Swiss	4'-0" to 4'-6"	5'-0"	5'-4"	6'-0"
Shorthorn	4'-0" to 4'-6"	5'-0"	5'-4"	6'-0"
Ayrshire	4'-0" to 4'-6"	4'-10"	5'-2"	5'-6"
Guernsey	3'-6" to 4'-0"	4'-6"	4'-10"	5'-2"
Jersey	3'-6" to 4'-0"	4'-4"	4'-8"	5'-0"
Heifers	2'-9" to 3'-2"	3'-8"	3'-10"	4'-2"

Butter width 6'-8" with stalls 5'-6" and longer. 6'-16" with all others.

Length of portions P: 3'-6" for cows, 3'-2" for heifers.

* No stall less than 3'-6" wide should be used for cows in milk. Where curbs are placed between stalls, stalls shall be 6 inches wider. Some large cows may require stalls up to 4'-10" wide

NOTE: Where floor of barn slopes, the relation between the outside grade and the datum shall be established at the point where the floor will be lowest.

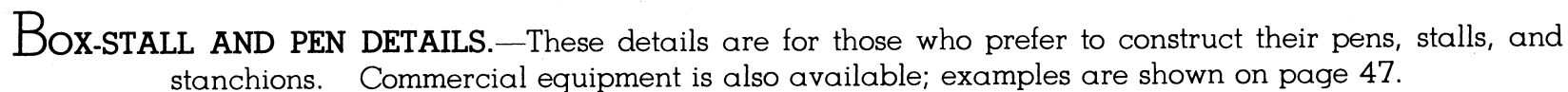
Floor to slope 1" in 10'-0" longitudinally.

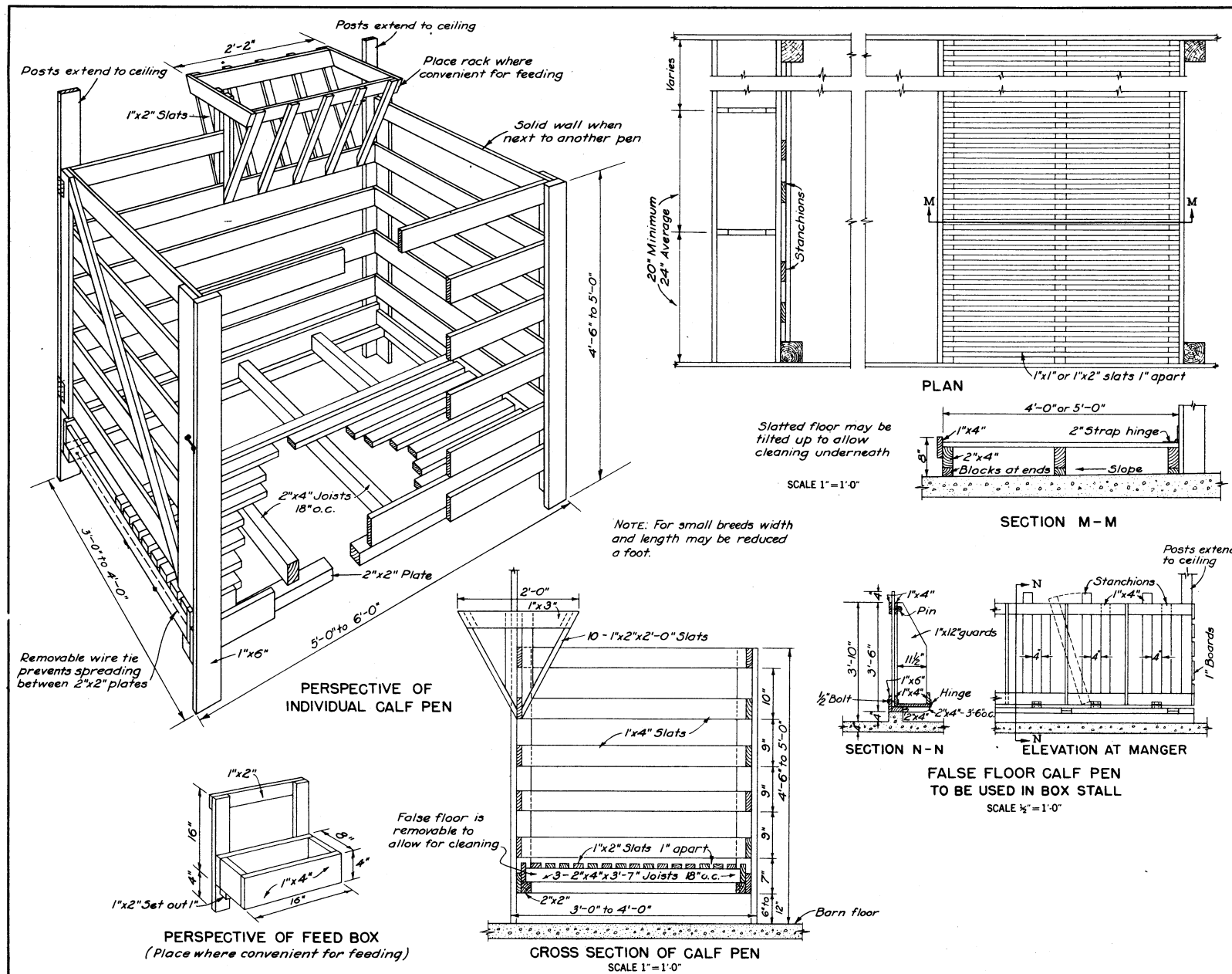
All concrete except foundation walls, 1:2:3 mix.

Floors, float finished. Curbs,
mangers & gutters trowel finished.

If manger divisions are used,
form manger with templet
furnished by manufacturer.

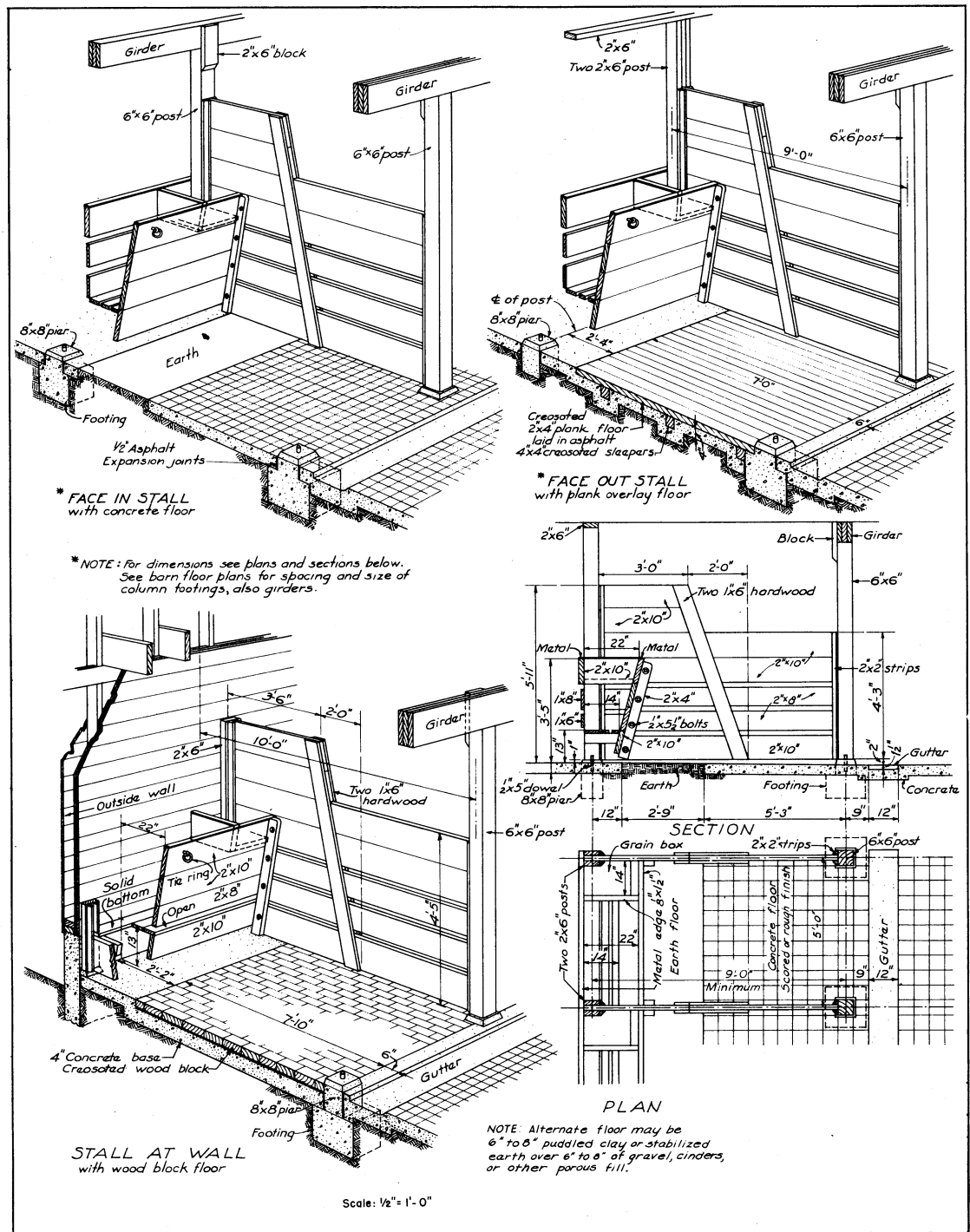
COW-STALL DETAILS.—Stalls of proper size are an important factor in reducing udder injuries and keeping platforms and alleys clean. If there is doubt as to size of stall platform to be used for a particular herd, the county agricultural agent or the State extension agricultural engineer should be consulted.

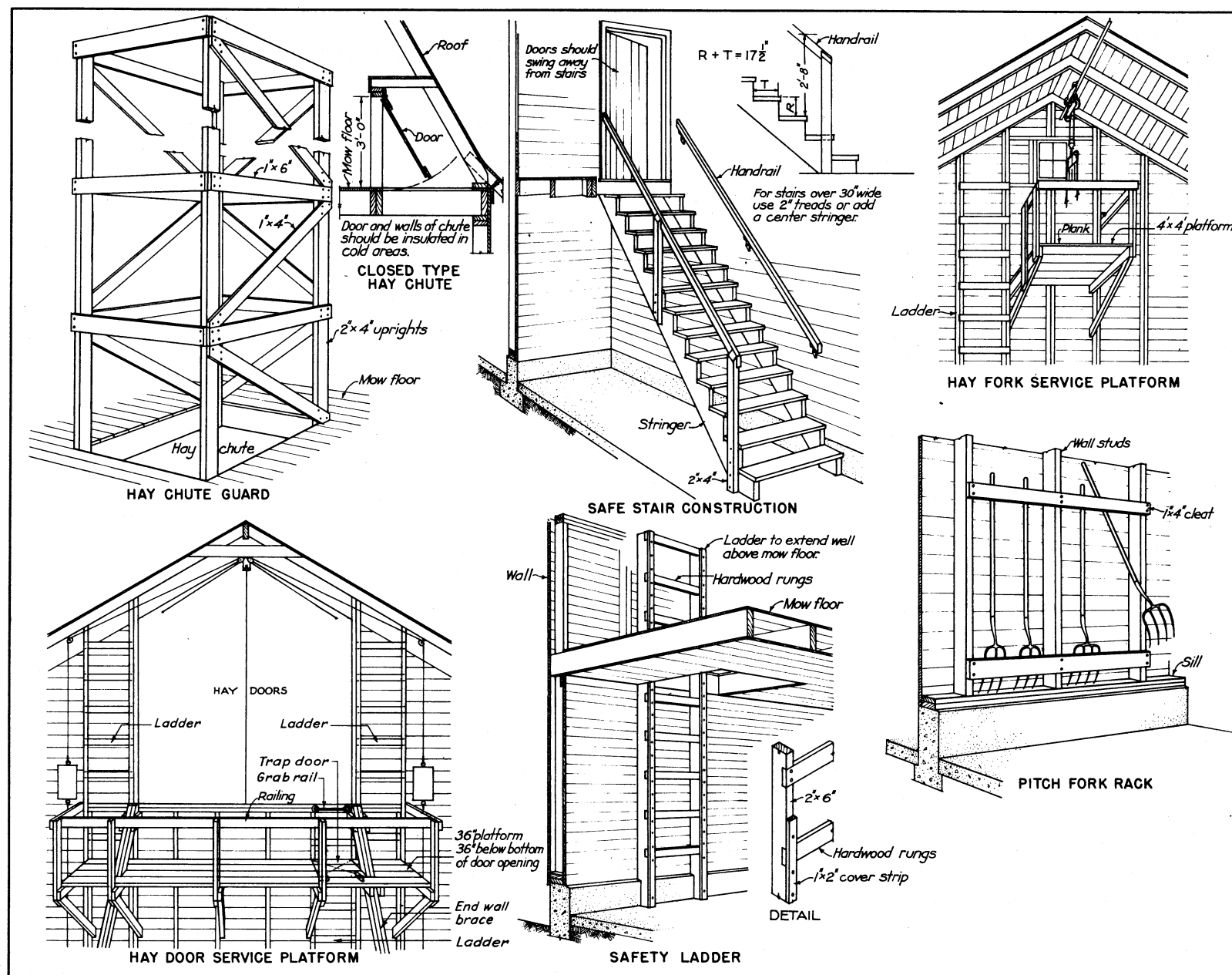




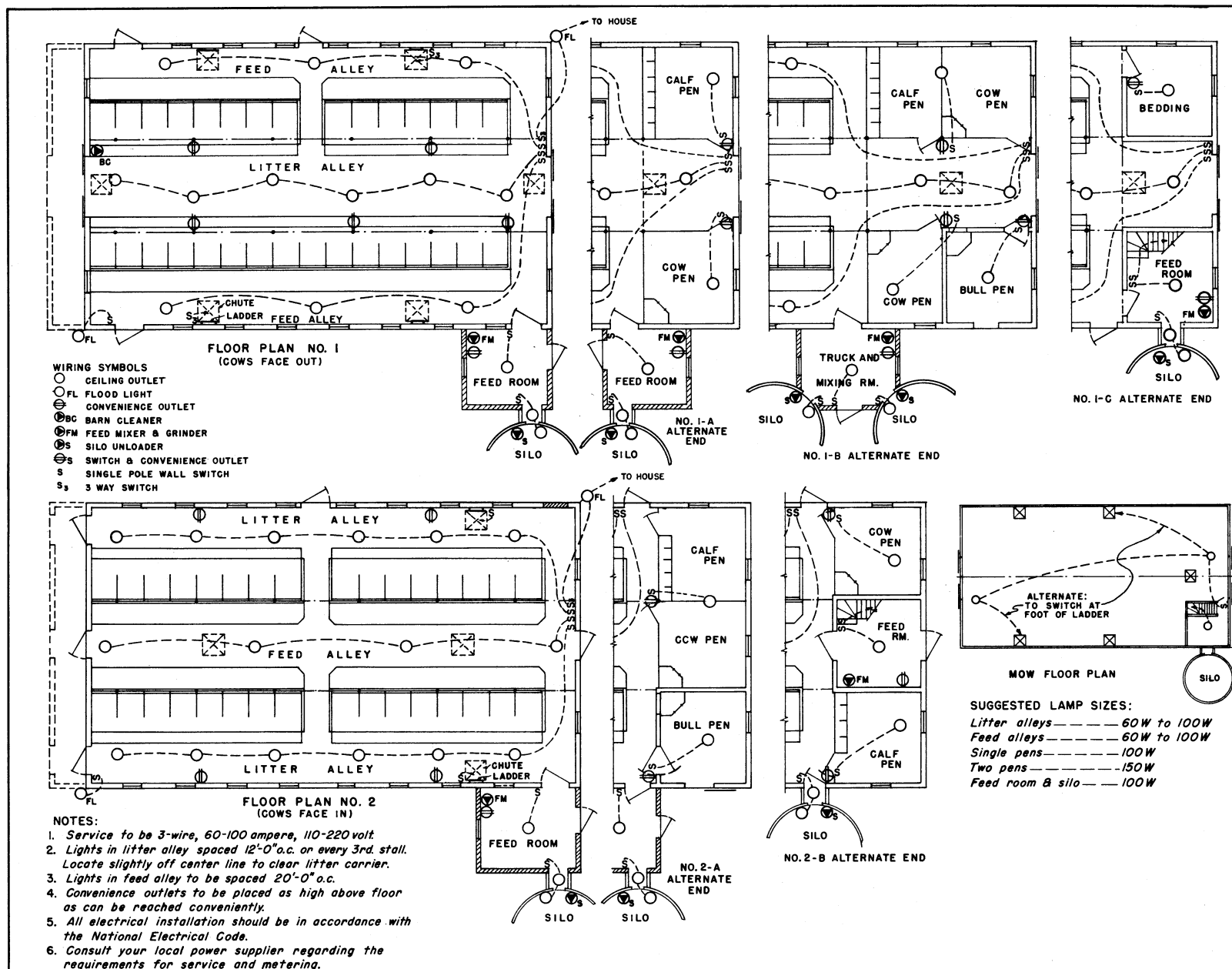
CALF-PEN DETAILS.—Two types of pens are shown on this drawing, one built as a separate unit, the other for use in an existing box stall. The feed rack and feed box shown may be placed in any convenient location on the sides of the pen. The feed box is designed to be movable.

HORSE-STALL DETAILS.—This drawing gives details for constructing horse stalls and the recommended sizes for such stalls. Three different types of flooring material are shown.





BARN SAFETY DETAILS.—These details or similar safety features should be incorporated in every barn. This sheet shows methods of protecting against common farm accidents.



WIRING DIAGRAMS FOR BARNs.—Diagrams do not show outlets for all types of electrical equipment that may be wanted. For special conditions not covered by this drawing, consult your county agricultural agent, State extension agricultural engineer, or your local power company.

BARN EQUIPMENT

Most equipment needed in barns can be purchased ready-made. The illustration on page 47 shows typical examples of some of the equipment available from various manufacturers.

Steel stall partitions help keep cows from stepping on each other, thus reducing injuries. They are made in a wide variety of shapes. . . Figures 1 and 2.

Steel stanchions are of various designs. They may be hung on either a straight top rail or steel pipe arches. They are usually adjustable, forward and backward, at the top, and some have adjustments at the bottom also. Figures 1 and 2.

Tie stalls are usually less costly and in general give cows more freedom of movement than do stanchion stalls. Some breeders like these stalls because cows show to advantage in them, but more bedding may be wasted in these stalls. Figure 3.

Manger divider helps keep each cow's rations separated. Hinged dividers that can be raised make mangers easier to clean. Figure 4.

Water bowls tend to increase milk production because cows drink more water if it is always available. Figure 5.

Milking stalls are of two principal types. The most popular are the tandem stalls set on elevated platforms so that the milker works at waist level. The gates are controlled from the milking pit. Figure 6.

The other type is the milking panel in which the cows stand side by side in a short row. Stalls are opened and closed from the milker's area. . . Figure 7.

Pens are needed for bulls, maternity cows and calves, and young stock:

Bull pen. Figure 8.

Maternity pen. Figure 9.

Calf pen. Figure 10.

Barn cleaners installed in the gutters may reduce the labor of keeping barns clean. Figure 11.

The equipment for loading litter into the manure spreader will vary with the barn arrangement and location. Figures 12 and 13.

Litter carriers provide another method of moving litter from the barn to the spreader or manure pit. Figures 14 and 15.

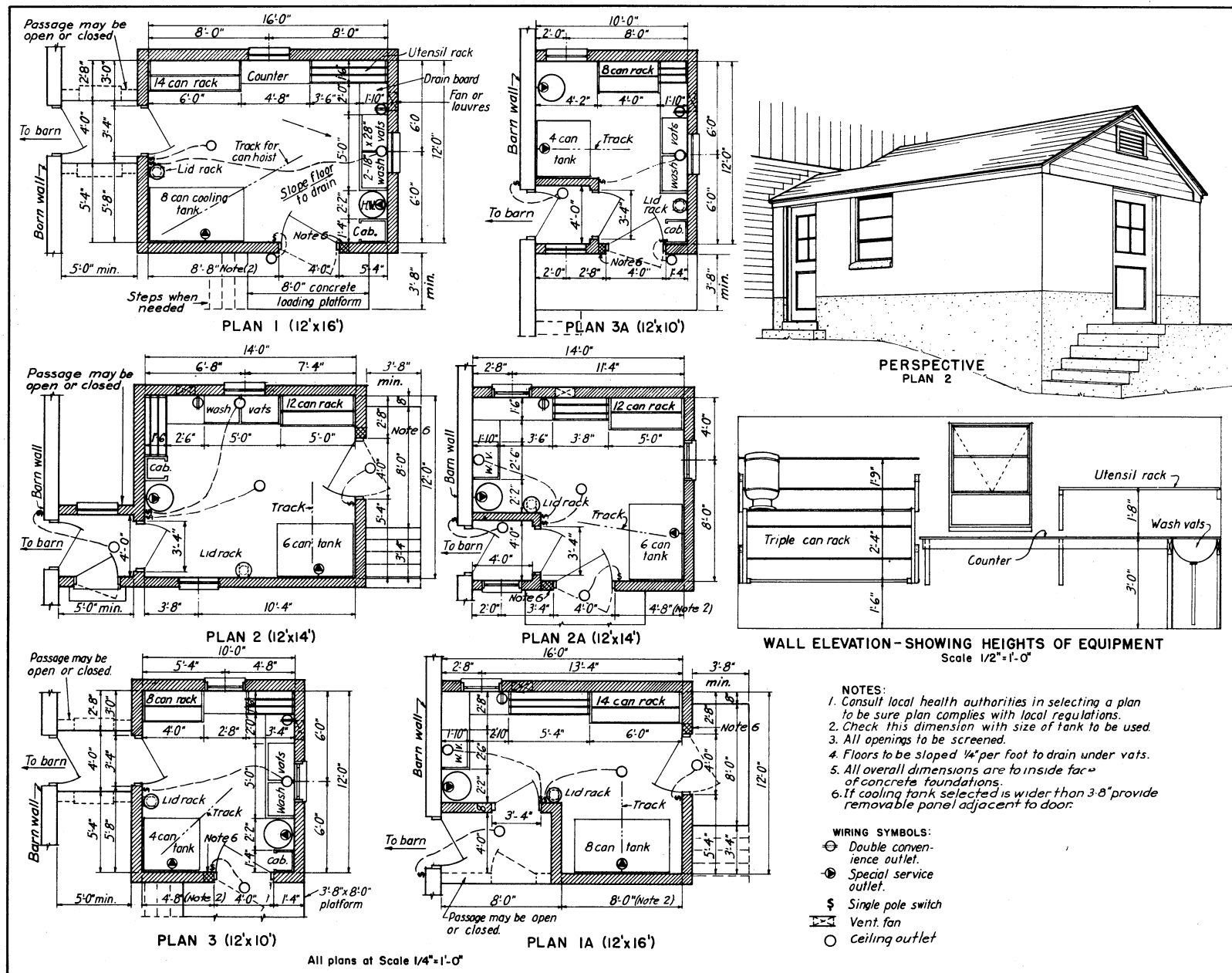
Tub trucks do not require a track though the barn. The tub is wheeled through the barn to the door and connected to the lift, which carries it on a track to the dumping point. Trucks may also be used for moving feed boxes or fitted with platforms for hauling milk cans. Figure 16.

Feed carts reduce the amount of lifting and carrying of grain and forage. The dimensions of the cart should be based on the size of the herd. In new barns, feeding and cross alleys should be wide enough to use feed carts. Figure 17.

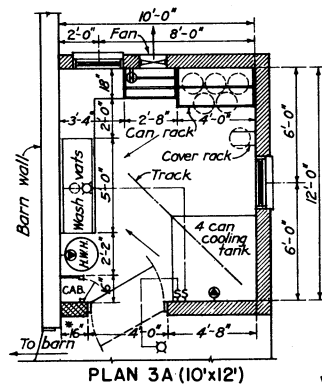
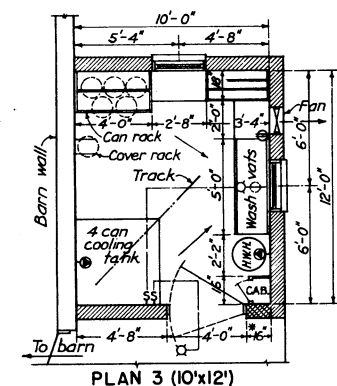
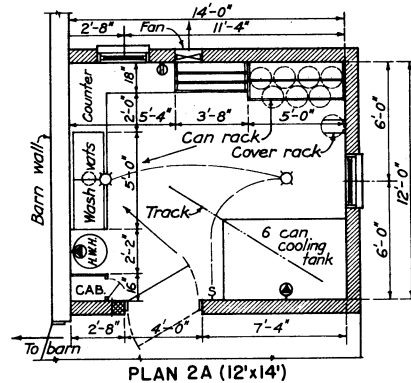
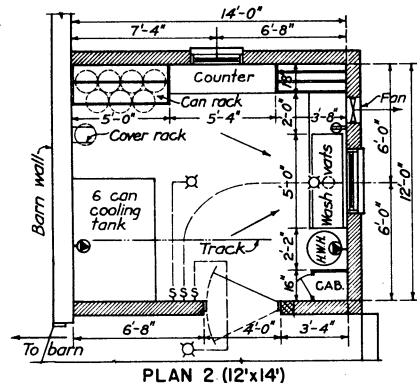
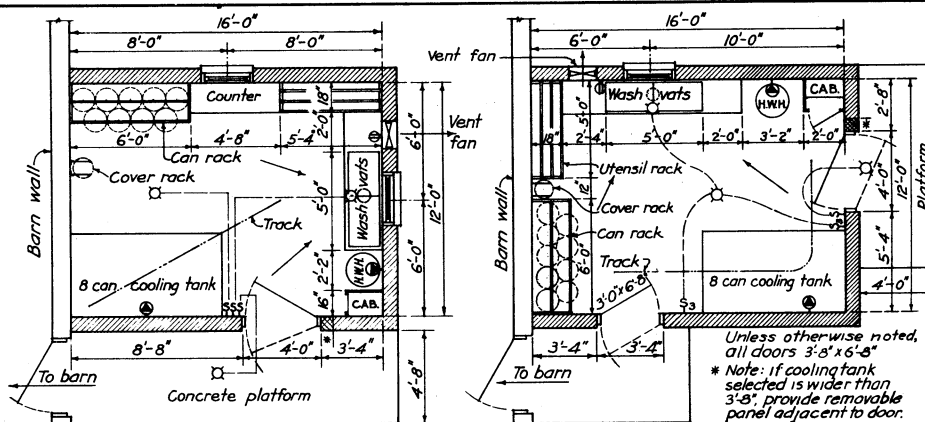
Controlled ventilation is being used more widely, especially in the colder areas, with the greater availability of electricity. Electric fans are usually controlled by thermostats or humidistats. Figure 18.



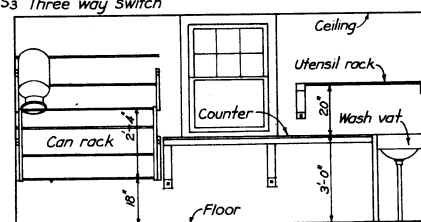
MILK AND DAIRY HOUSES



MILK-HOUSE PLANS; 12-foot width, open or closed passage.—Three lengths—16, 14, and 10 feet—are shown with alternate plans for each. Local health authorities should be consulted before final selection of a milk-house plan.

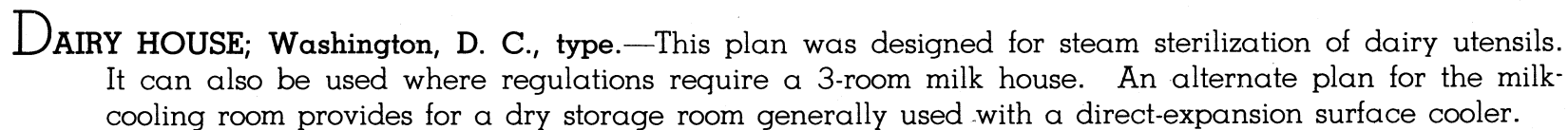


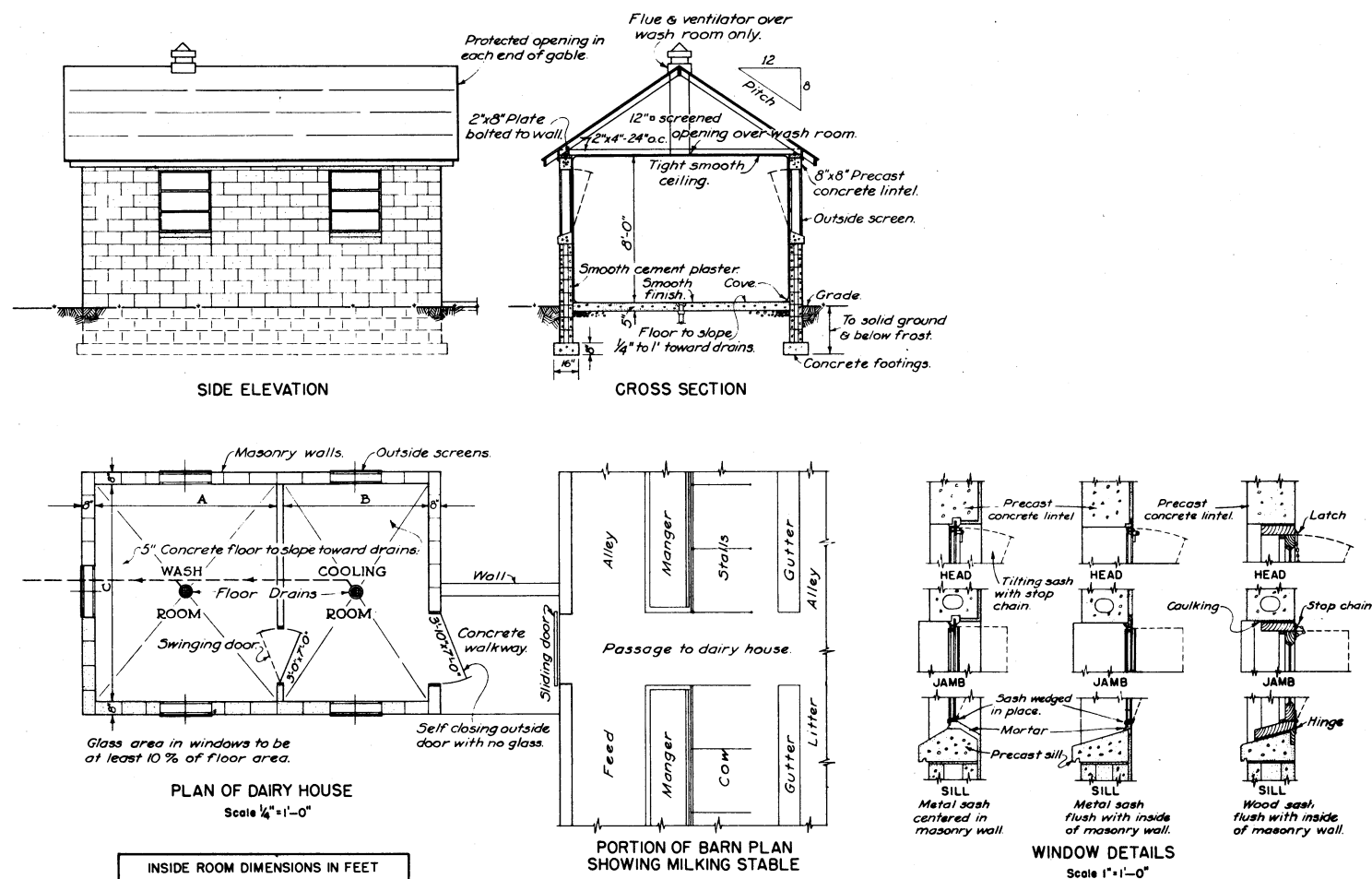
- WIRING SYMBOLS
- Ceiling outlet
 - Special purpose outlet
 - ⊕ Double convenience outlet
 - S Single pole switch
 - S3 Three way switch



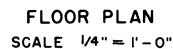
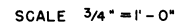
Floors to slope $\frac{1}{4}$ " per foot to drain.
All openings to be screened.
Check tank size to be sure tank will fit
Consult local health authorities to be sure the
plan selected complies with local regulations.

MILK-HOUSE PLANS; 12-foot width, open passage.—Three lengths are shown, with alternate arrangements for each. The platform connecting barn and milk-house doors also serves as a loading platform. Where possible, the end of the platform should be 3 feet 6 inches high to facilitate loading trucks.





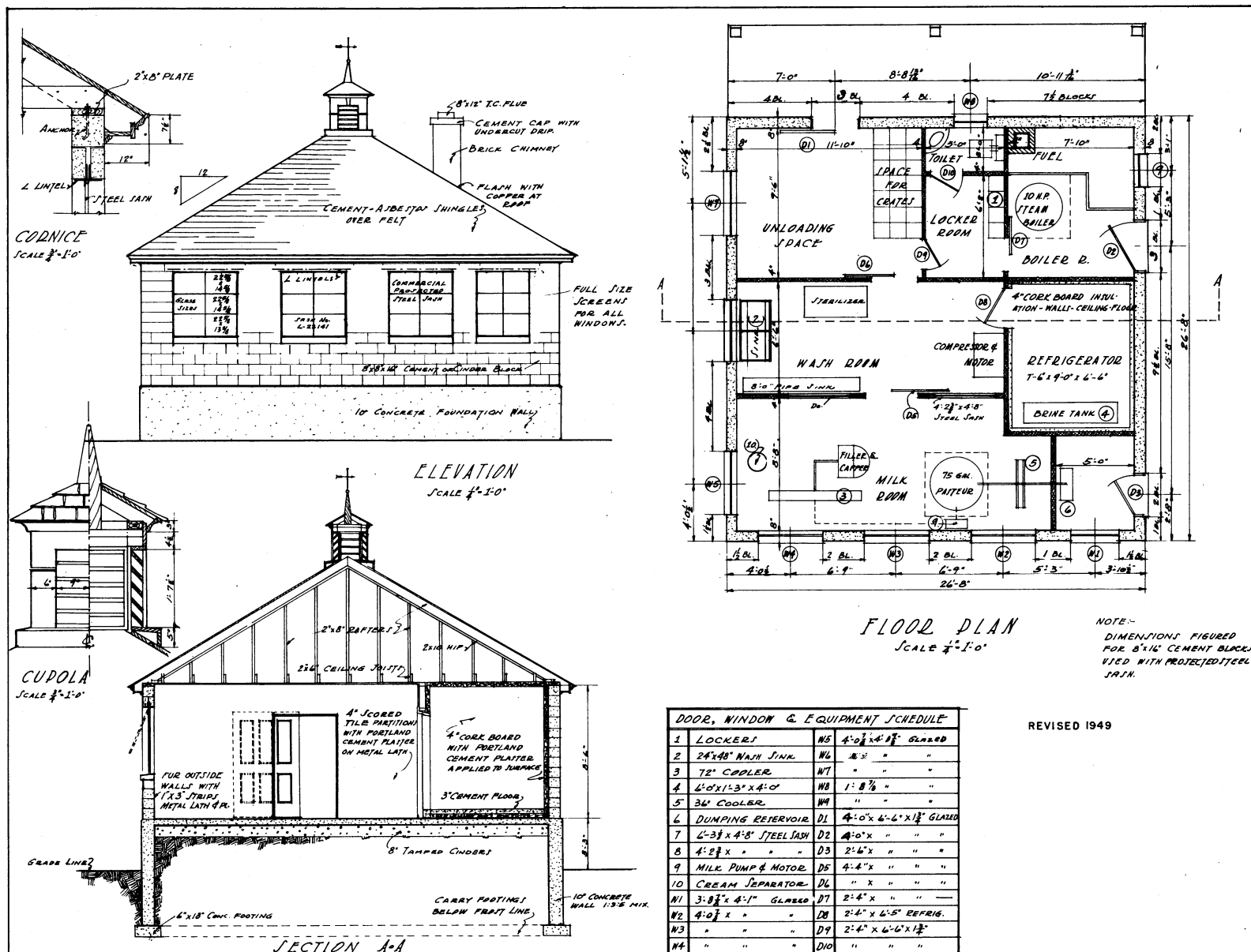
DAIRY HOUSE; Baltimore, Md., type.—This plan was originally designed to comply with rules of the Baltimore City Health Department. It is suitable for use wherever local health regulations permit milk producers to use hot water or chemical sterilization of dairy utensils.



- Notes:**

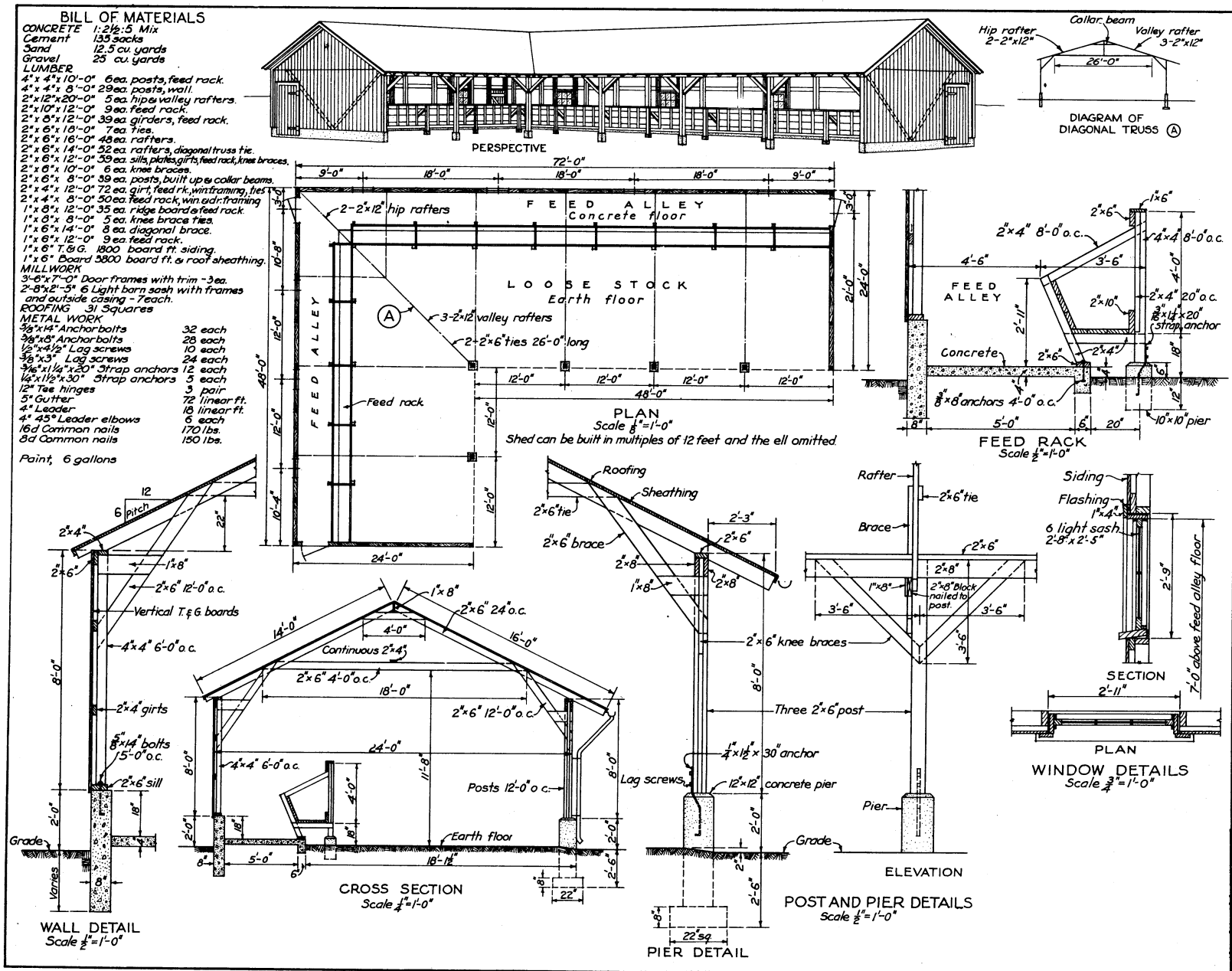
1. Consult local health authorities to be sure plan complies with local regulations.
2. All openings to be screened.
3. Slope all floors $\frac{1}{4}$ " per ft. to drains.
4. All doors are 6'-8" high. Door widths are shown on plan.
5. Windows shown are commercial projected type.

54

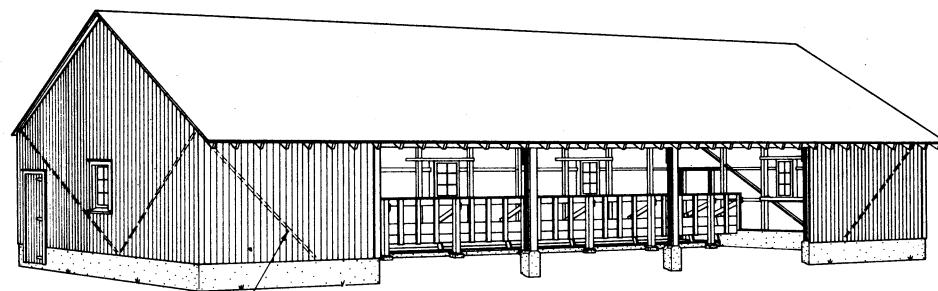


PASTEURIZING PLANT.—Plants for small retail dairies are often constructed so that they do not lend themselves to changes in arrangement or changes in equipment. This plan may be changed easily to meet needed requirements.

CATTLE SHELTERS AND EQUIPMENT

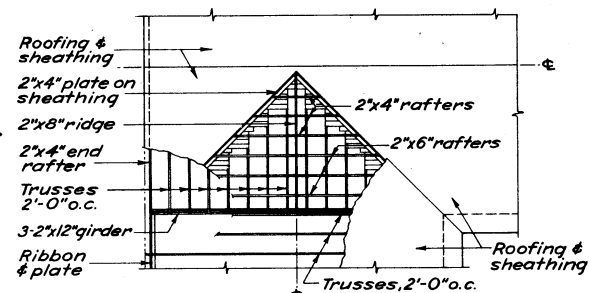


OPEN CATTLE SHED; 24 feet wide.—For use in the feed lot or for sheltering dry cows or young stock on a dairy farm. It may be built any length in increments of 12 feet, either in the L-shape shown or in a straight line. A feed alley permits using a cart for filling the mangers.



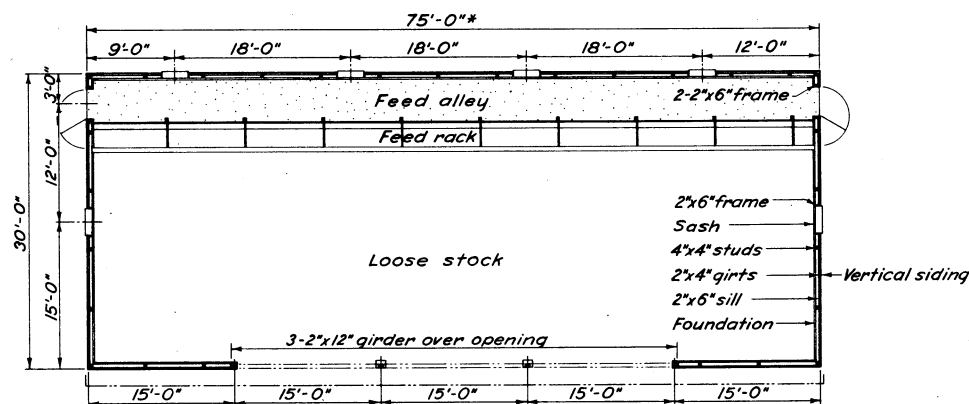
2"x4" diagonal braces
at all corners

PERSPECTIVE



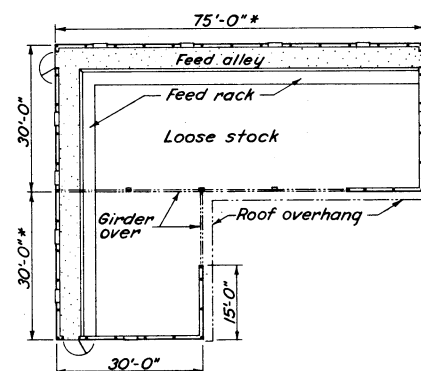
ROOF FRAMING AT ELL

Scale: 1/8" = 1'-0"



PLAN

Scale: 1/8" = 1'-0"



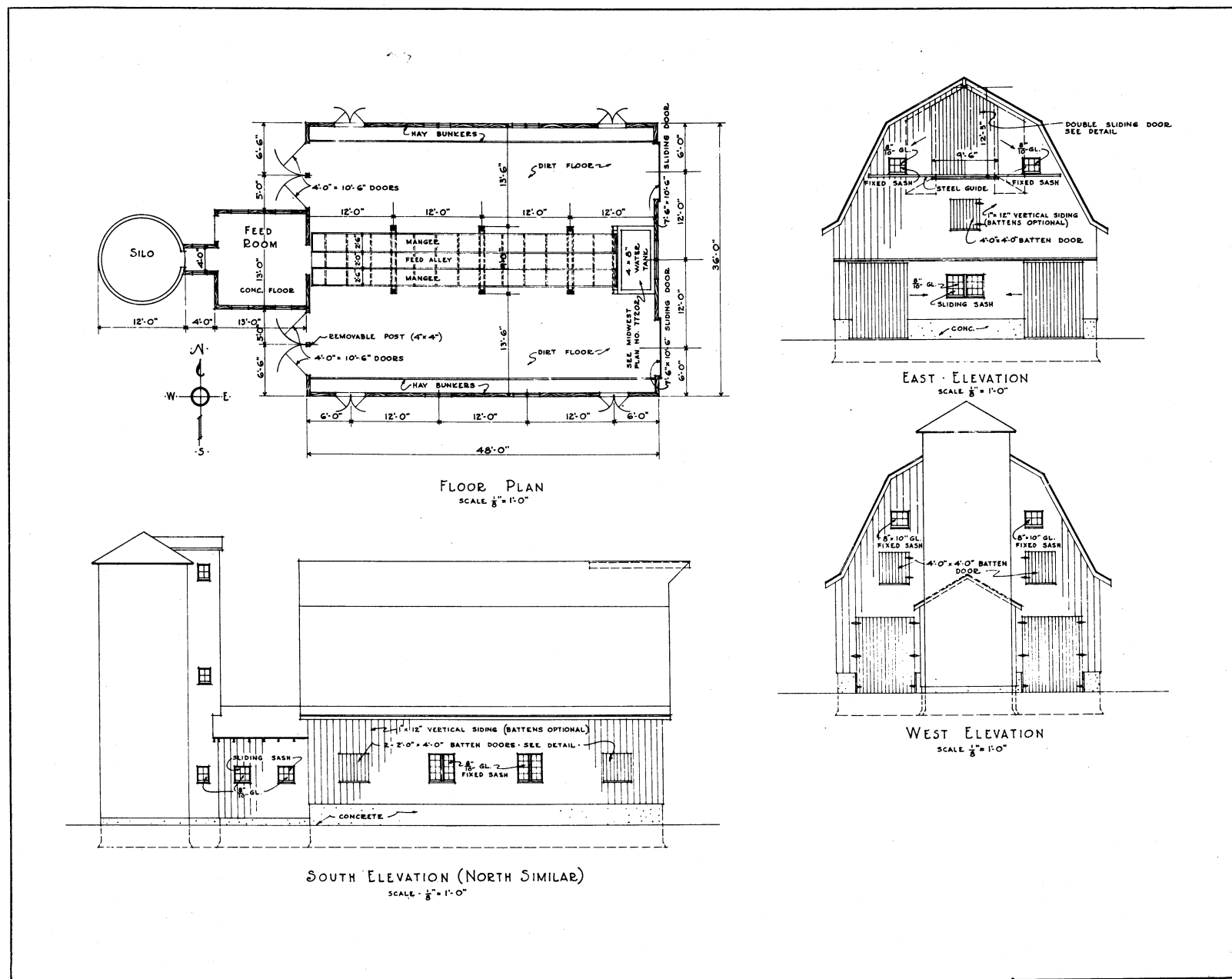
PLAN WITH ELL

Scale: 1/8" = 1'-0"

NOTE: Shed can be built any
desired length in
multiples of 15 feet.
Variable dimensions
are marked with an
asterisk (*).

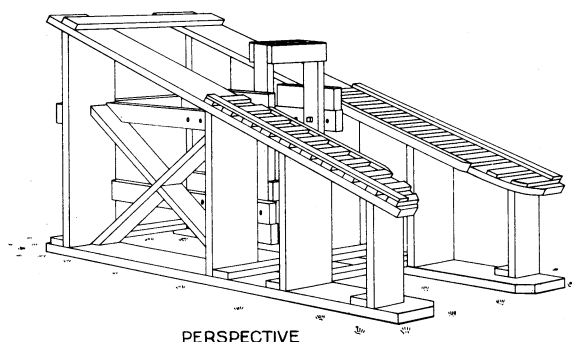
If feed racks are omitted
and openings equipped
with sliding doors, this
building is suitable for use
as a machinery shed.

OPEN CATTLE SHED; 30 feet wide.—Many cattlemen prefer a 30-foot wide shed in order to provide better shelter. This shed may be straight or L-shaped. Bays are 15 feet in length. The structure is also suitable for an implement shed and one bay may be partitioned off for a repair shop.



For barn safety
details, see
drawing No.
5697.

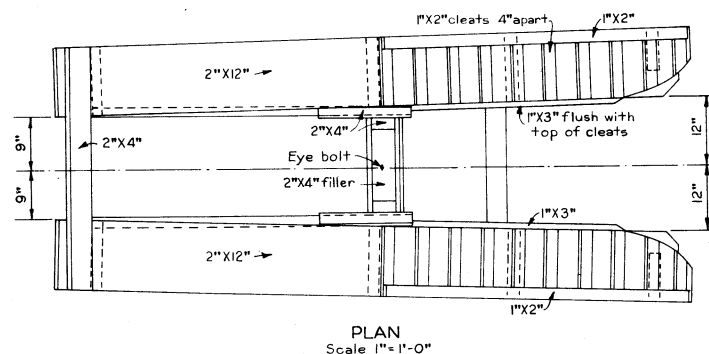
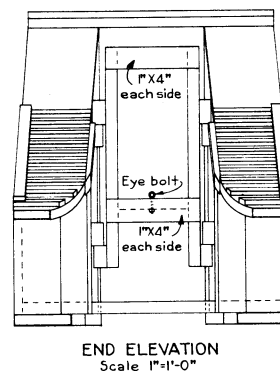
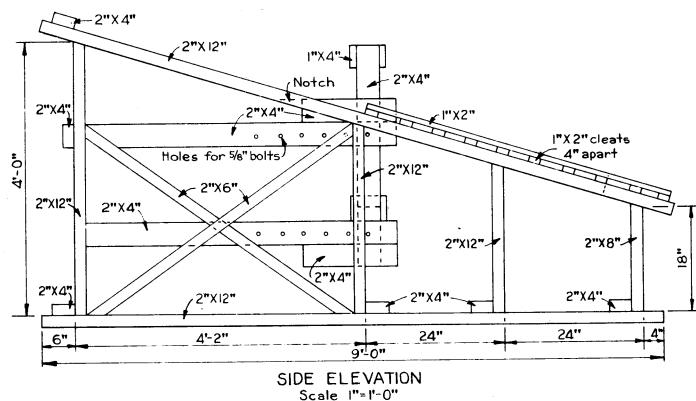
CATTLE BARN; 2-story, gambrel roof, 36 by 48 feet.—Suitable for fattening steers, breeding beef stock, the loose housing of dairy cows, or for dry cows and heifers. Capacity: 34 steers or beef cows; or 24 to 28 dairy cows, provided there is a paved feeding and exercise area. Capacity: 50 tons of loose hay.



BILL OF MATERIALS

- 2-2"x12"x10'-0" base
- 2-2"x12"x10'-0" uprights
- 1-2"x 8"x 6'-0"
- 1-2"x 4"x12'-0" bottom ties
- 2-2"x 6"x10'-0" diagonal braces
- 2-2"x 4"x12'-0" extension bars
- 2-2"x12"x10'-0" foot rest
- 1-2"x 4"x 8'-0" end ties
- 1-2"x 4"x10'-0" yoke
- 1-1"x 4"x 6'-0"
- 1-1"x 3"x 8'-0" foot guards
- 30-lin. ft. 1"x2" cleats
- b-1bs. 20d nails
- 2-lbs 10 d nails
- 1-¾" eye bolt 4" long 1½" eye.

PERSPECTIVE



CATTLE-BREEDING RACK.—A breeding rack is desirable when breeding small cows or heifers to heavy bulls. This simple, rugged rack can be adjusted to the size of the cow. For safety, the rack should be used with breeding stall, drawing No. 5143.

Posts

6"x 6"x 12'-0"	2 eo
6"x 6"x 10'-0"	2 "
6"x 6"x 9'-0"	2 "

Rails

2" x 6" x 14'-0" 8 "

2" x 10" x 14'-0" 2 "

Steel angle

4" x 3" x 1/2" x 6'-0" 1 "

Steel reinforcing
1/2" rods

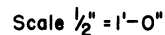
1/2" rods 32 ft.
steel anchor bolts

Steel anchor bolts
5/8" x 11" with 3"

3/8" x 11" With 3"
plate washers 6 ea
4 1/2" x 4" 2

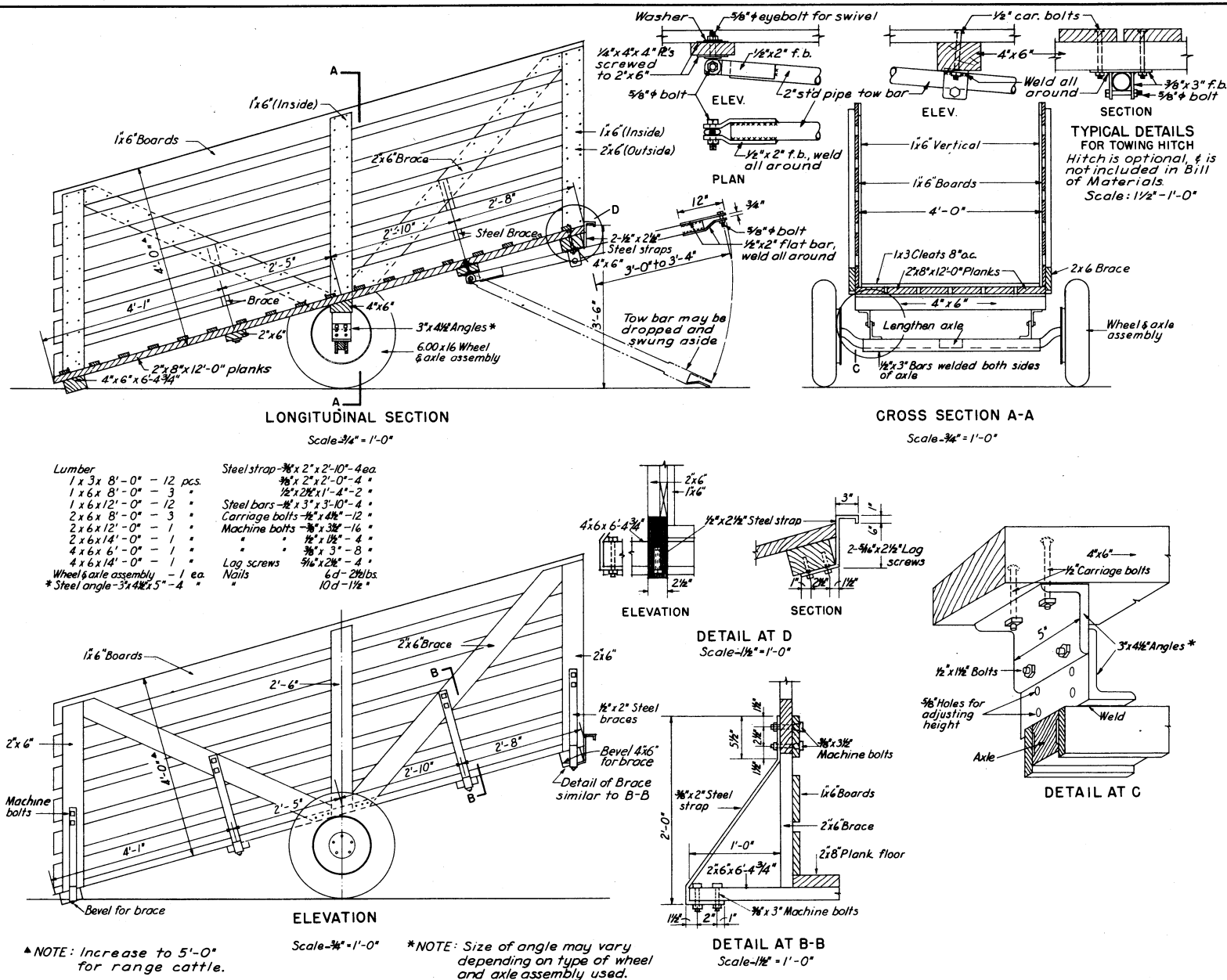
12"x4"
Lag screws

Ldg screws
4 1/2" x 1" 36



** Make ramp 8'-0" wide if it is to be used for loading machinery, & reinforce corners with 1/2" ϕ rods 4'-0" long, 12" o.c.*

62

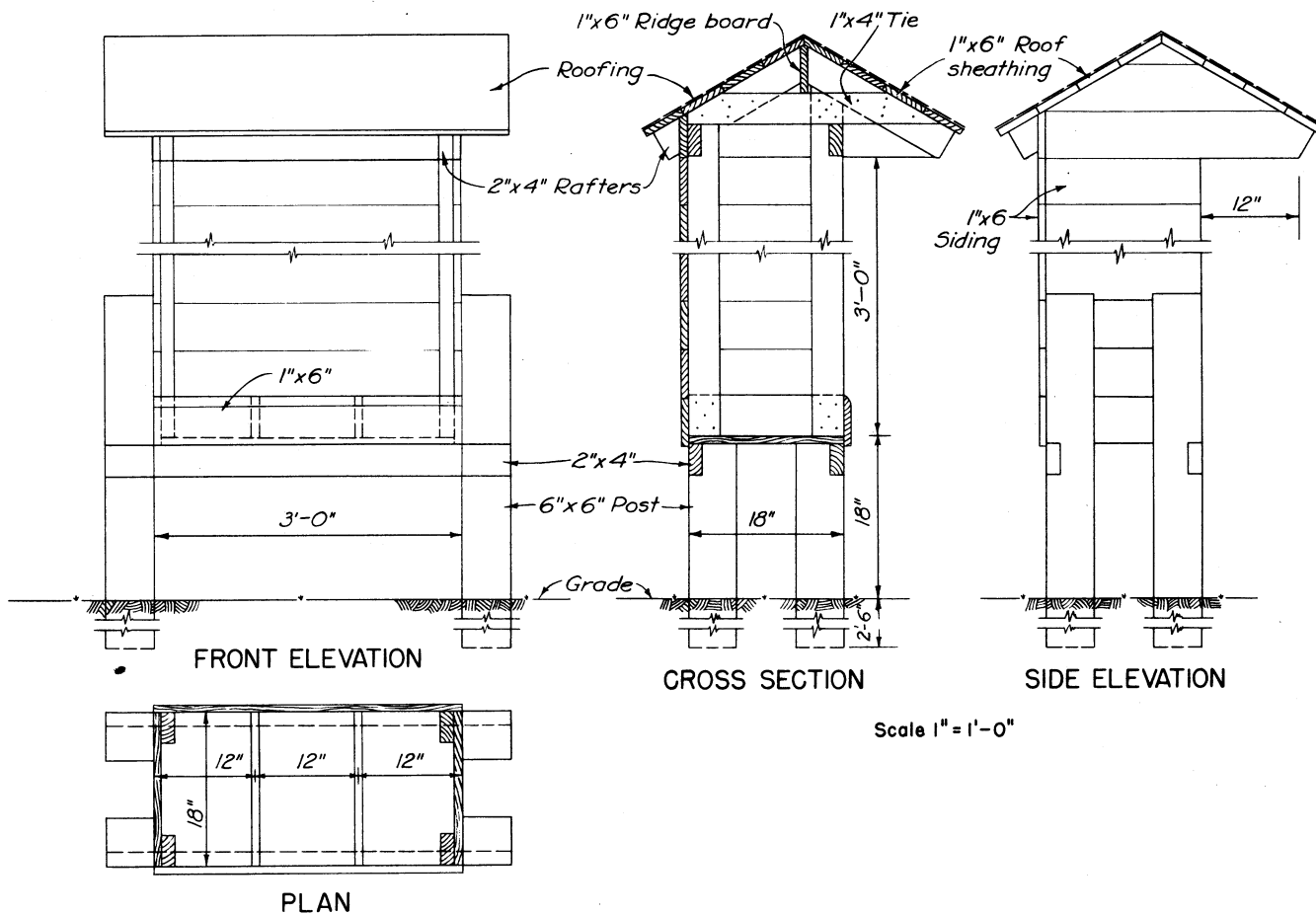


MOVABLE CHUTE FOR LOADING CATTLE.—While all types of farm animals can be loaded with this chute, it was designed principally for cattle. If it is to be used for loading range cattle, the height of the sides should be increased to 5 feet.

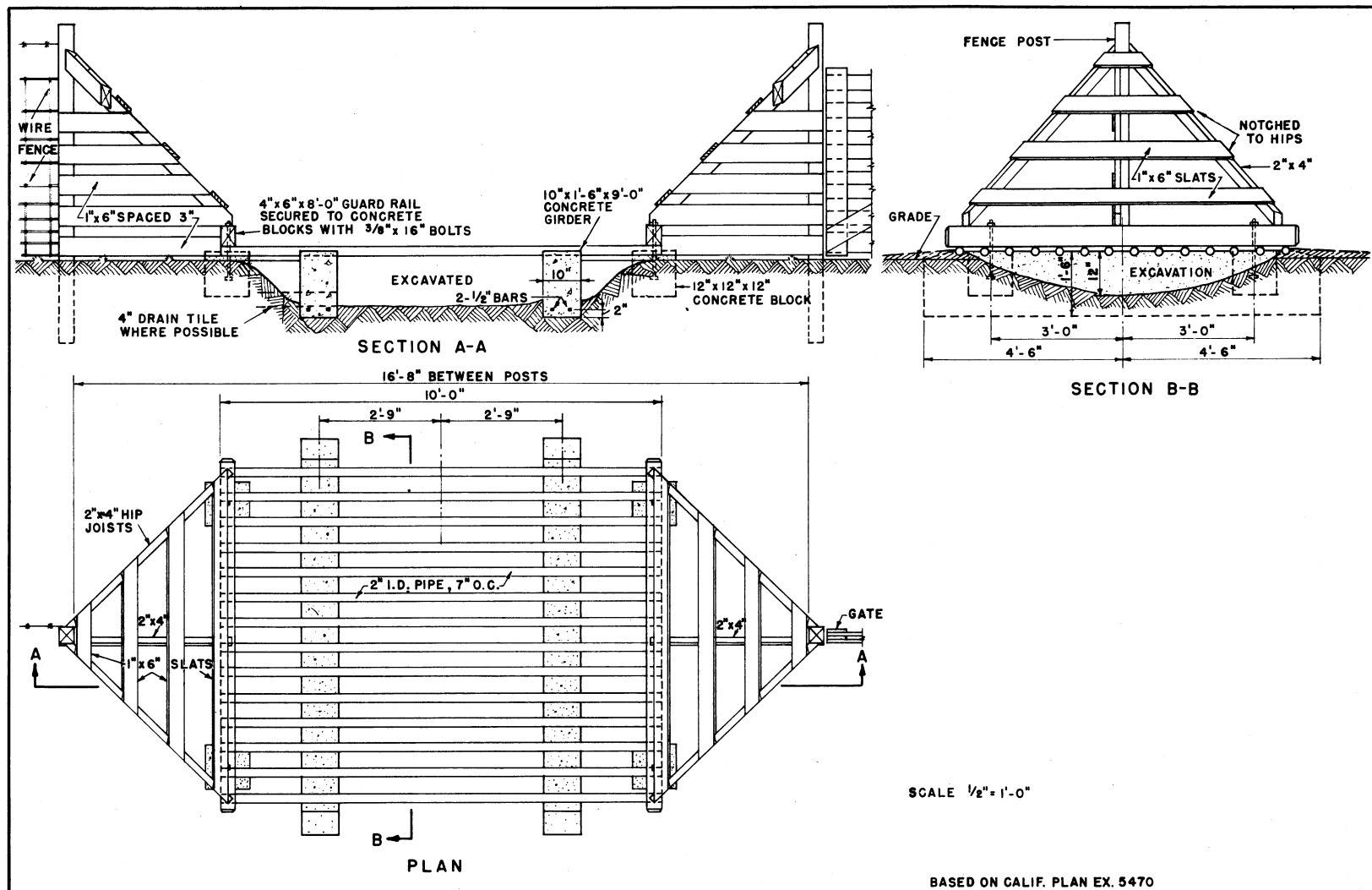
DRAWING No.
5655
(1 sheet)

Not illustrated:
DRAWING No.
5656
(1 sheet)

Single compartment,
1 by 2½
feet; height to
under side of
protecting roof,
6 feet



SALT AND MINERAL BOX FOR LIVESTOCK; three compartments.—This heavily constructed box, which is divided into 1- by 1½-foot compartments for salt and other minerals, reduces waste and protects contents from the weather.



DRAWING No.
5743
(1 sheet)

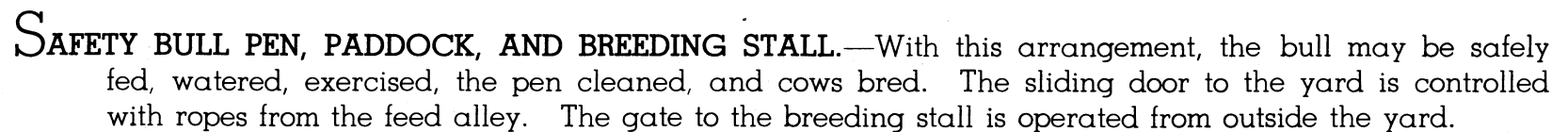
Not illustrated:
DRAWING No.
5741

(1 sheet)
Wooden cattle
guard

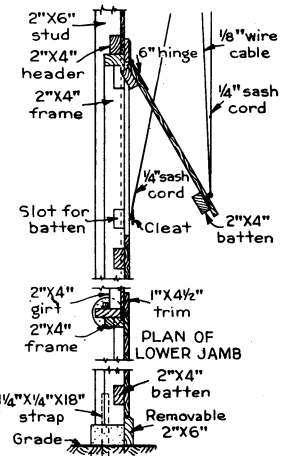
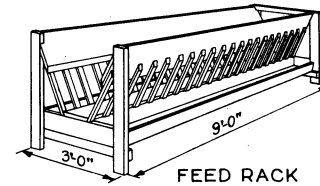
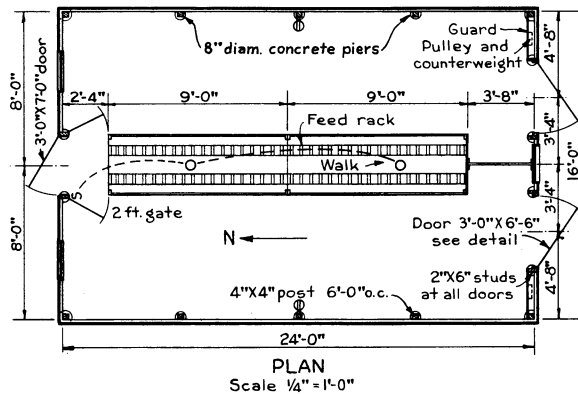
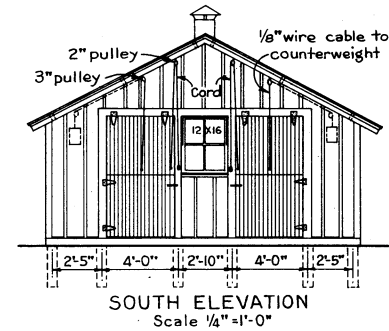
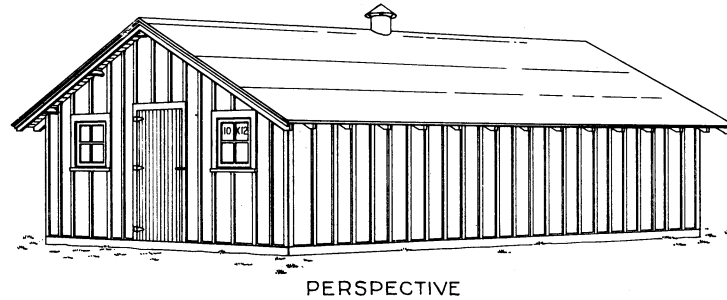
DRAWING No.
5742
(1 sheet)

Concrete and
wood cattle
guard

CONCRETE AND STEEL CATTLE GUARD.—Effective barrier to cattle, hogs, sheep, and horses, and at the same time permits automobiles and trucks to pass freely without the necessity for gates. The guards are wide and strong enough for use by large dual-wheeled trucks up to 5 tons.



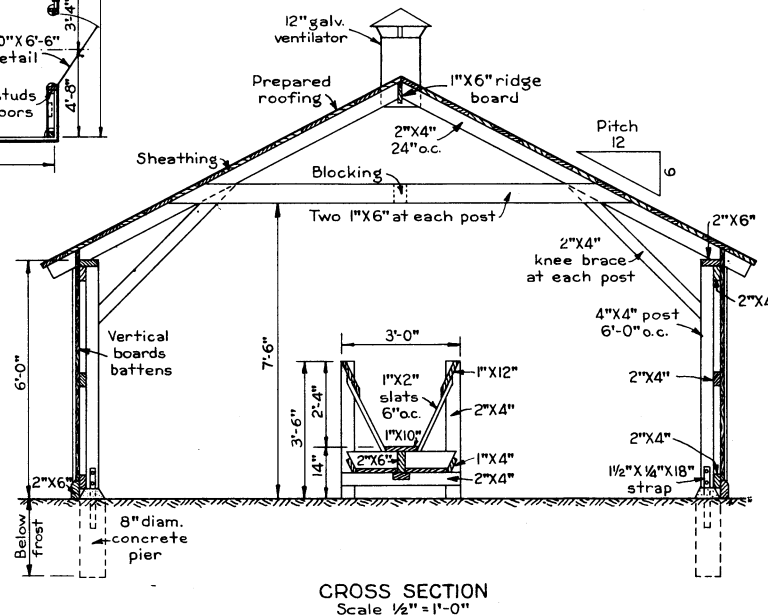
SHEEP SHELTERS



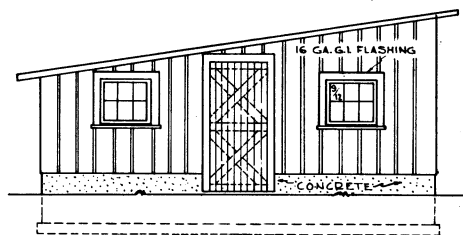
SECTION OF SOUTH DOOR
Scale 3/4" = 1'-0"

BILL OF MATERIALS

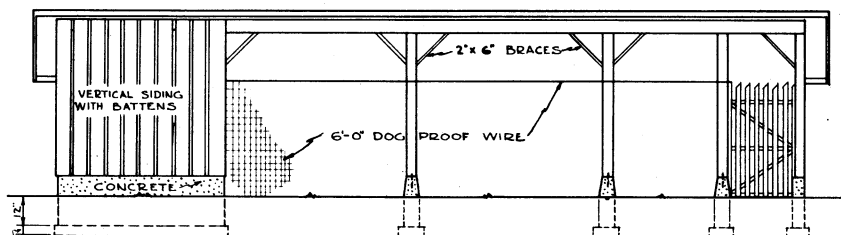
CONCRETE		
3 sacks cement	9 cu. ft. sand	15 cu. ft. gravel
LUMBER		
5-4"X4"X12'-0"	8-2"X6"X10'-0"	5-2"X6"X12'-0"
5-2"X6"X14'-0"	2-2"X4"X12'-0"	32-2"X4"X10'-0"
24-2"X4"X14'-0"	2-2"X4"X16'-0"	8-1"X12"X10'-0"
26-1"X12"X12'-0"	16-1"X12"X16'-0"	2-1"X10"X10'-0"
8-1"X6"X12'-0"	40-1"X3"X12'-0"	16-1"X3"X16'-0"
5-1"X4"X10'-0"	4-1"X4"X14'-0"	2-1"X4"X16'-0"
220-lin. ft. 1"X2"	620-ft. BM sheathing (roof)	
200-ft. BM 1"X4" T & G flooring (doors)		
MISCELLANEOUS		
6-squares roofing	2-sash 4 lights 10"X12"	
32-bolts 1/2"X4 1/2"	1-sash 4 lights 12"X16"	
5-hasps	5/2 pairs 6" T hinges	
8-2" pulleys, with hooks	1-12" galv. ventilator hood	
30-lin. ft. 1/8" wire cable	25-lin. ft. 1/4" sash cord.	
16-pieces strap iron 1 1/2"X1/4"X18"	2-20 lb. counterweights.	
8-lbs. 6d nails	50-lbs. 8d nails	12-lbs 16d nails.



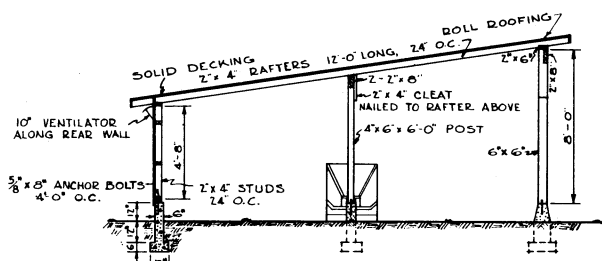
CLOSED SHEEP SHED; 16 by 24 feet.—Provides additional floor area where main barn has enough feed storage space but not enough floor space for stock. Center-pivoted windows and hinged upper half rear doors provide good ventilation. Capacity: 26 sheep.



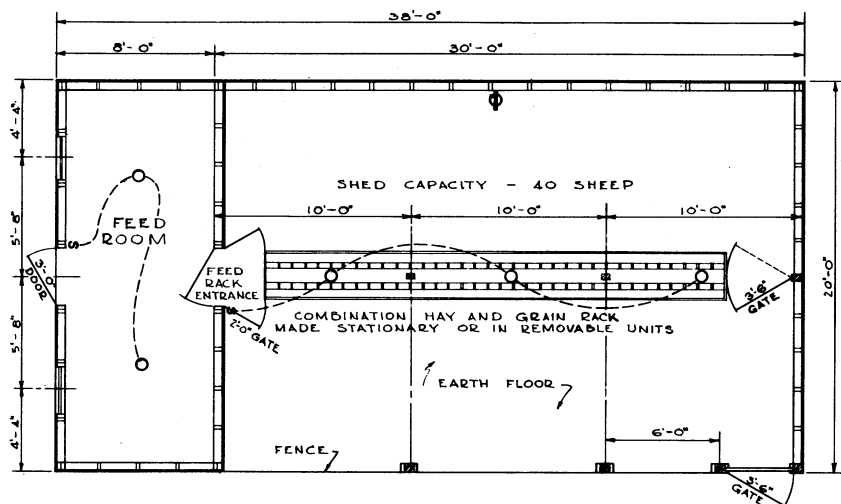
LEFT ELEVATION
SCALE: $\frac{1}{4}'' = 1'-0''$



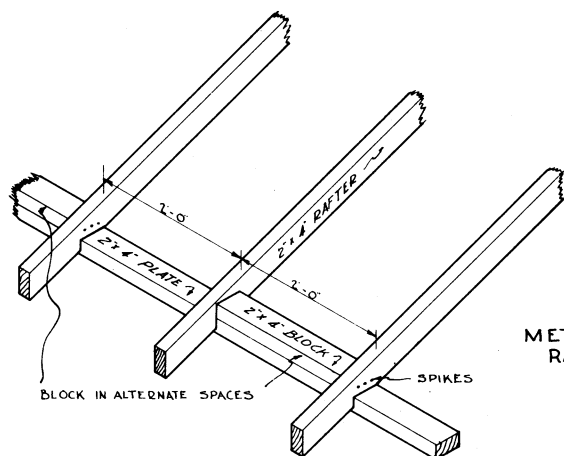
FRONT ELEVATION
SCALE: $\frac{1}{4}'' = 1'-0''$



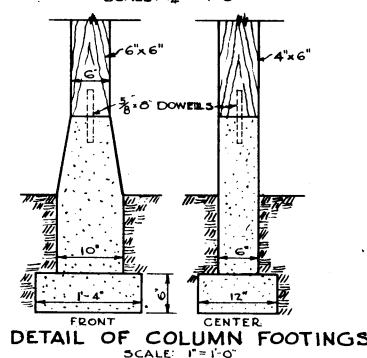
SECTION
SCALE: $\frac{1}{4}'' = 1'-0''$



FLOOR PLAN
SCALE: $\frac{1}{4}'' = 1'-0''$



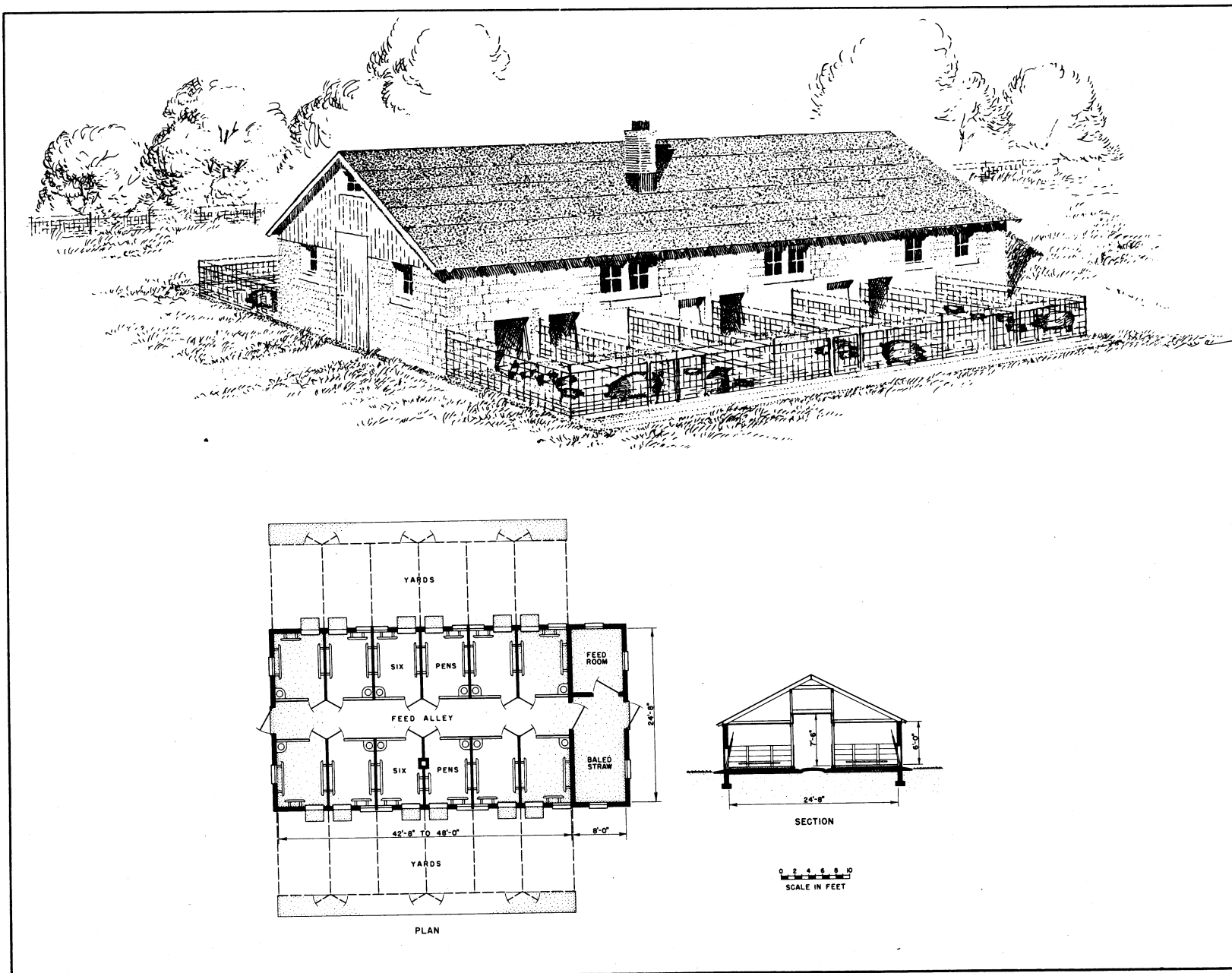
METHOD OF ANCHORING
RAFTERS TO PLATE
SCALE: 1" = 1'-0"



DETAIL OF COLUMN FOOTINGS
SCALE: 1" = 1'-0"

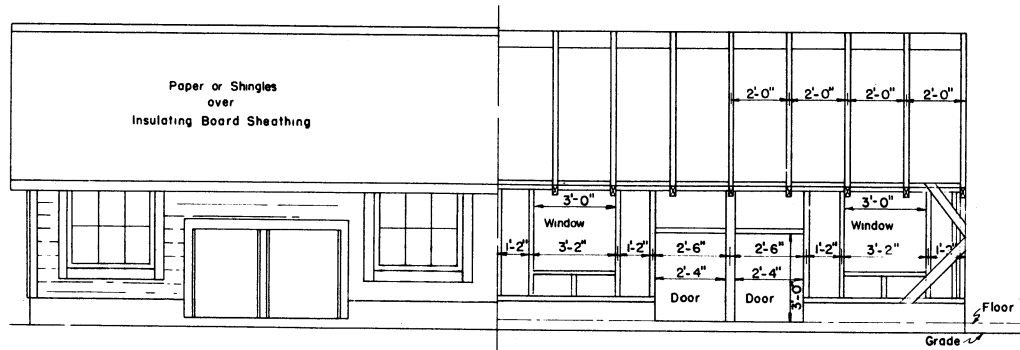
OPEN SHEEP SHED; 20 feet wide.—Relatively cheap to build because of its simple construction. Building can be lengthened to accommodate larger flocks. The walk-through feed trough is easily filled from the feed room. The open front may be fenced with wire to protect sheep. Capacity: 40 sheep.

HOG HOUSES AND EQUIPMENT



Sheets 2 and 3
show details for
frame and ma-
sonry walls.

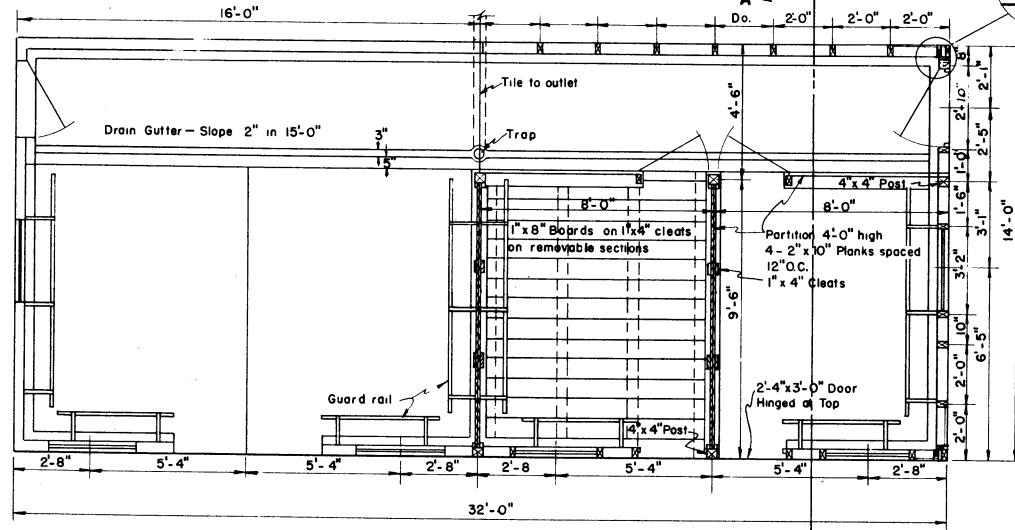
FARROWING HOUSE; 26 feet wide.—House should face east and west to assure sunlight reaching the pens on both sides. Building may be shortened or lengthened, and pens may be either 7 or 8 feet wide. Every other pen partition is removable, so that the building can be used for fattening hogs.



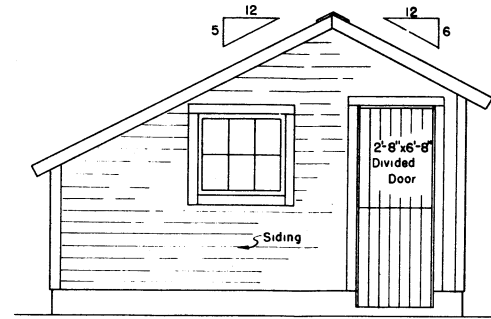
ELEVATION
Scale $\frac{3}{8}$ " = 1'-0"

(Southern Exposure)

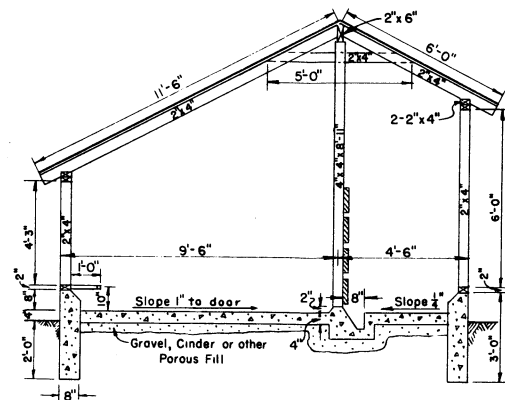
FRAMING
Scale $\frac{3}{8}$ " = 1'-0"



FLOOR PLAN
Scale $\frac{3}{8}$ " = 1'-0"

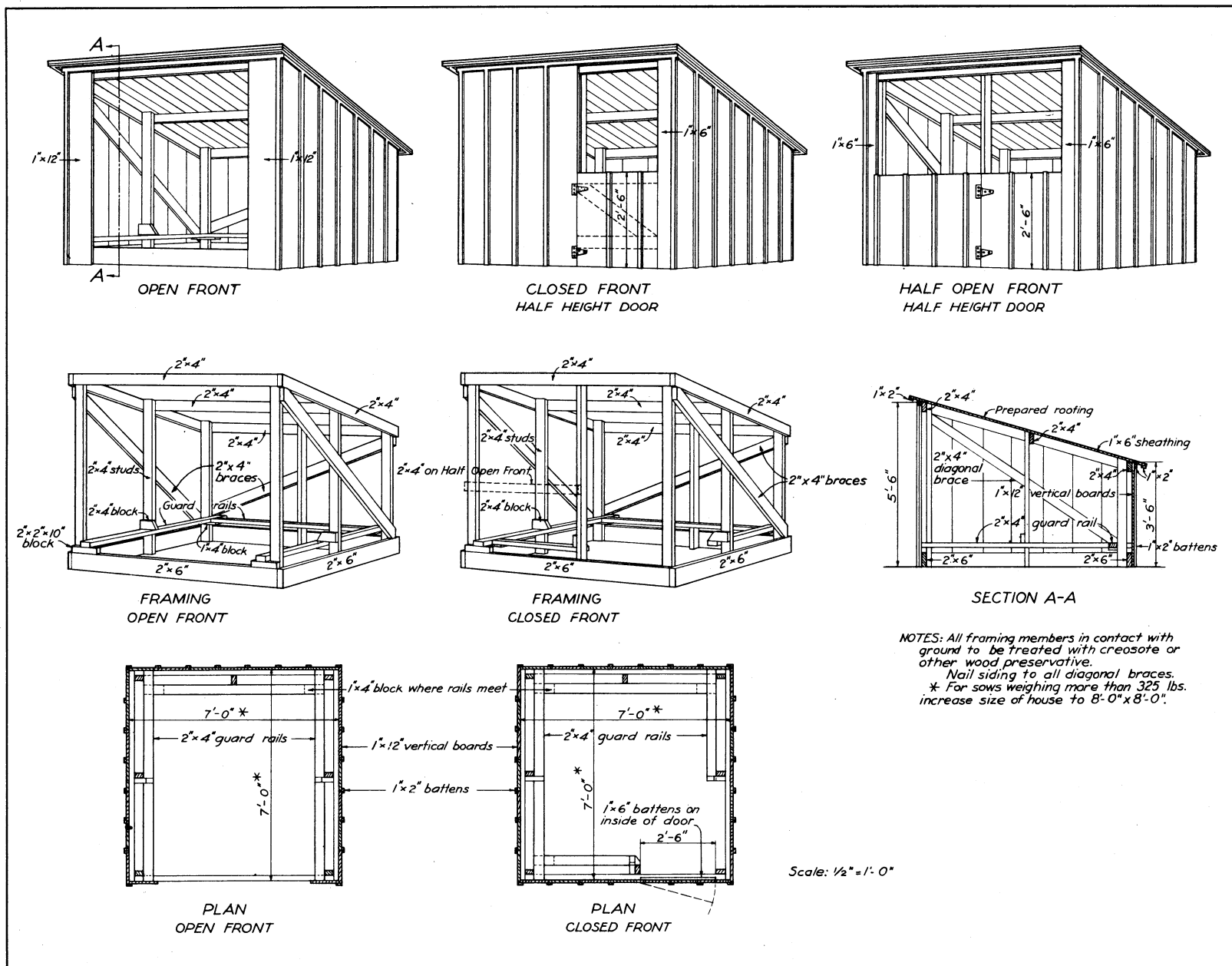


ELEVATION
Scale $\frac{3}{8}$ " = 1'-0"

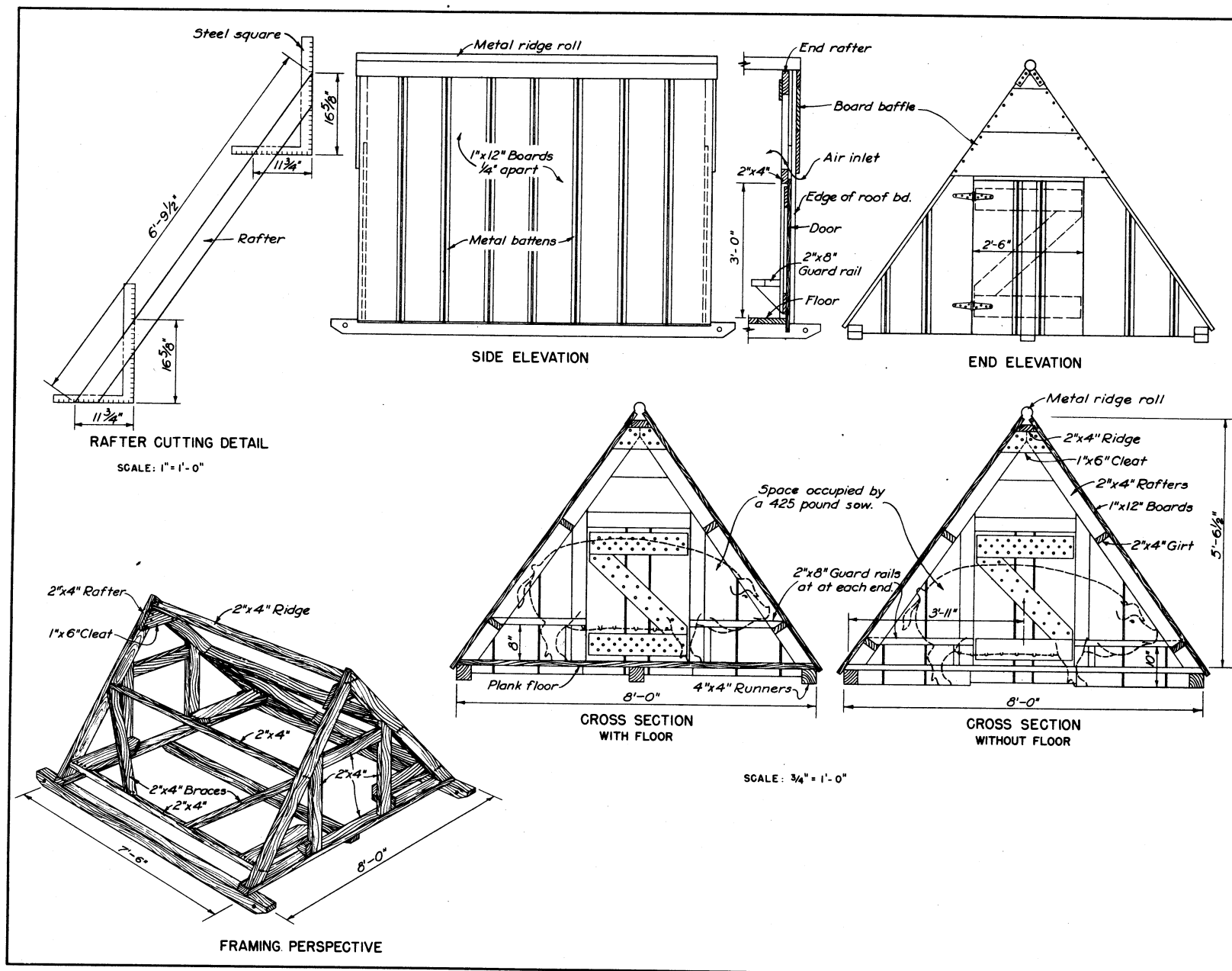


SECTION "A-A"
Scale $\frac{3}{8}$ " = 1'-0"

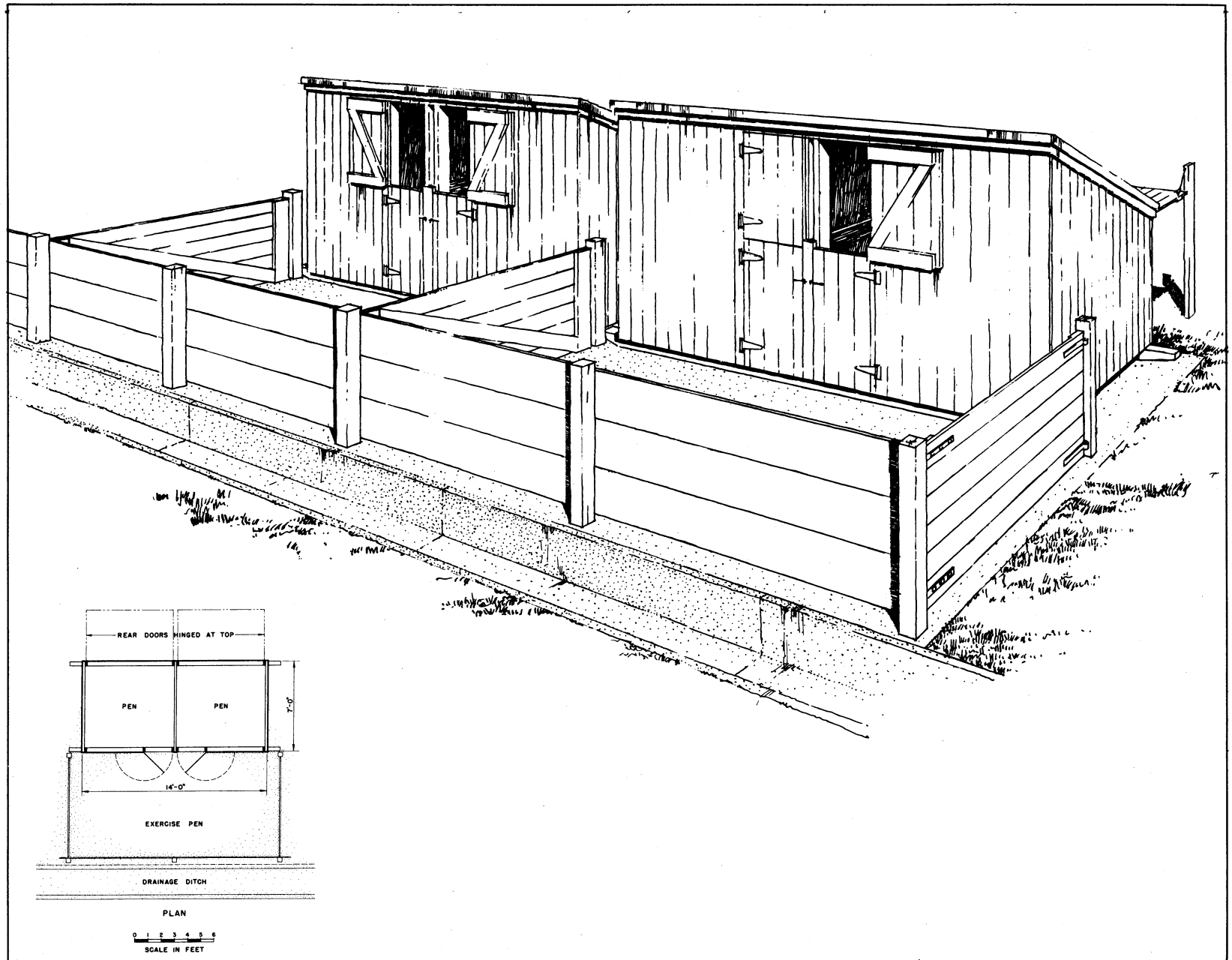
FARROWING HOUSE; 14 feet wide.—Economical type that may be built with any number of pens desired. Pen partitions are removable, so that the building can be used for fattening hogs.



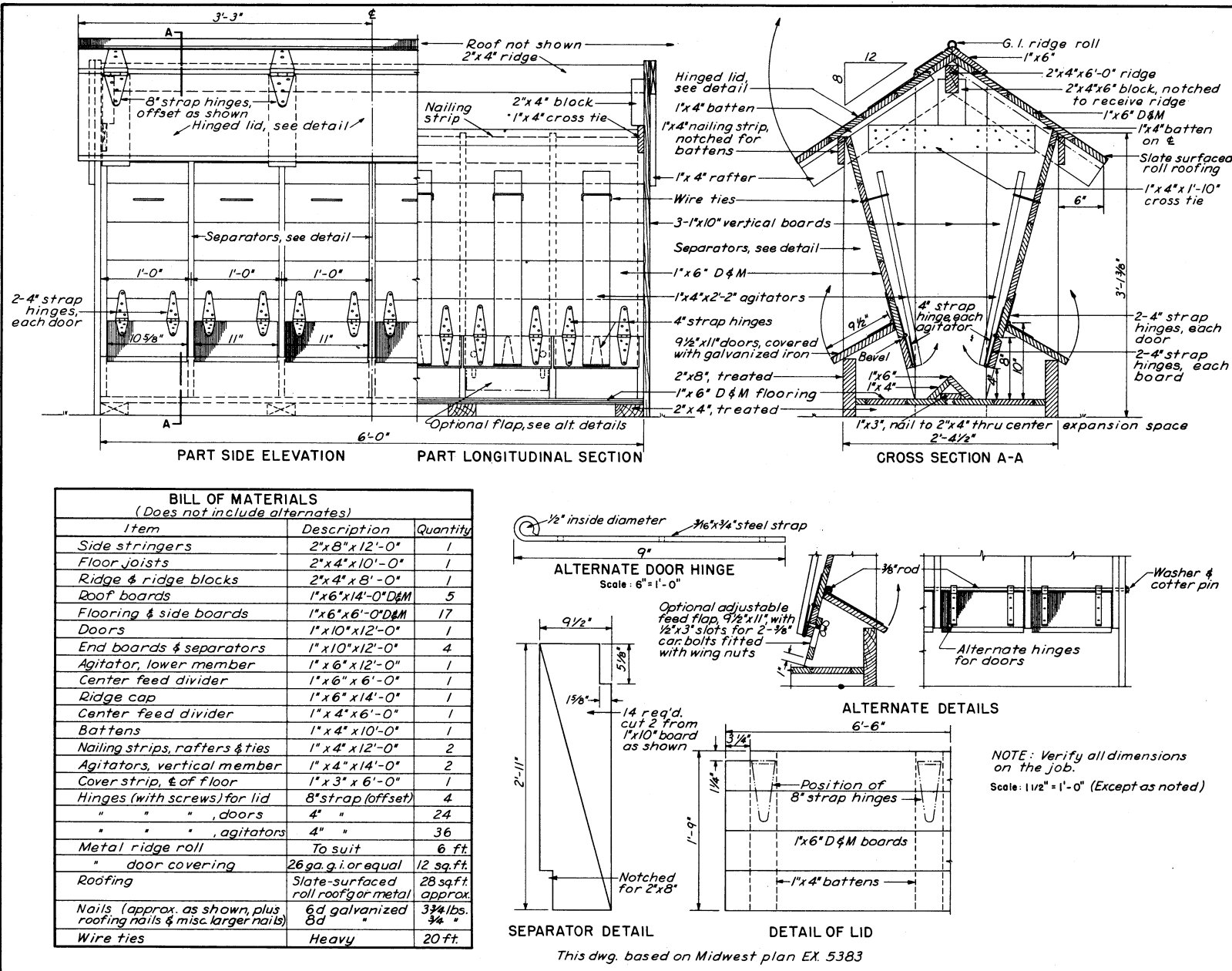
SHED-ROOF COLONY HOG HOUSE; single pen.—Three different fronts are suggested for this portable house. For sows weighing more than 325 pounds, house should be enlarged to 8 by 8 feet. The relatively light weight of house permits it to be loaded on low vehicles for moving.



A-TYPE COLONY HOG HOUSE; single pen.—End ventilators with baffles provide ventilation when doors are closed. Guard rails may be added for the protection of small pigs. If floor is omitted, the work of cleaning and disinfecting is reduced and moving is easier.

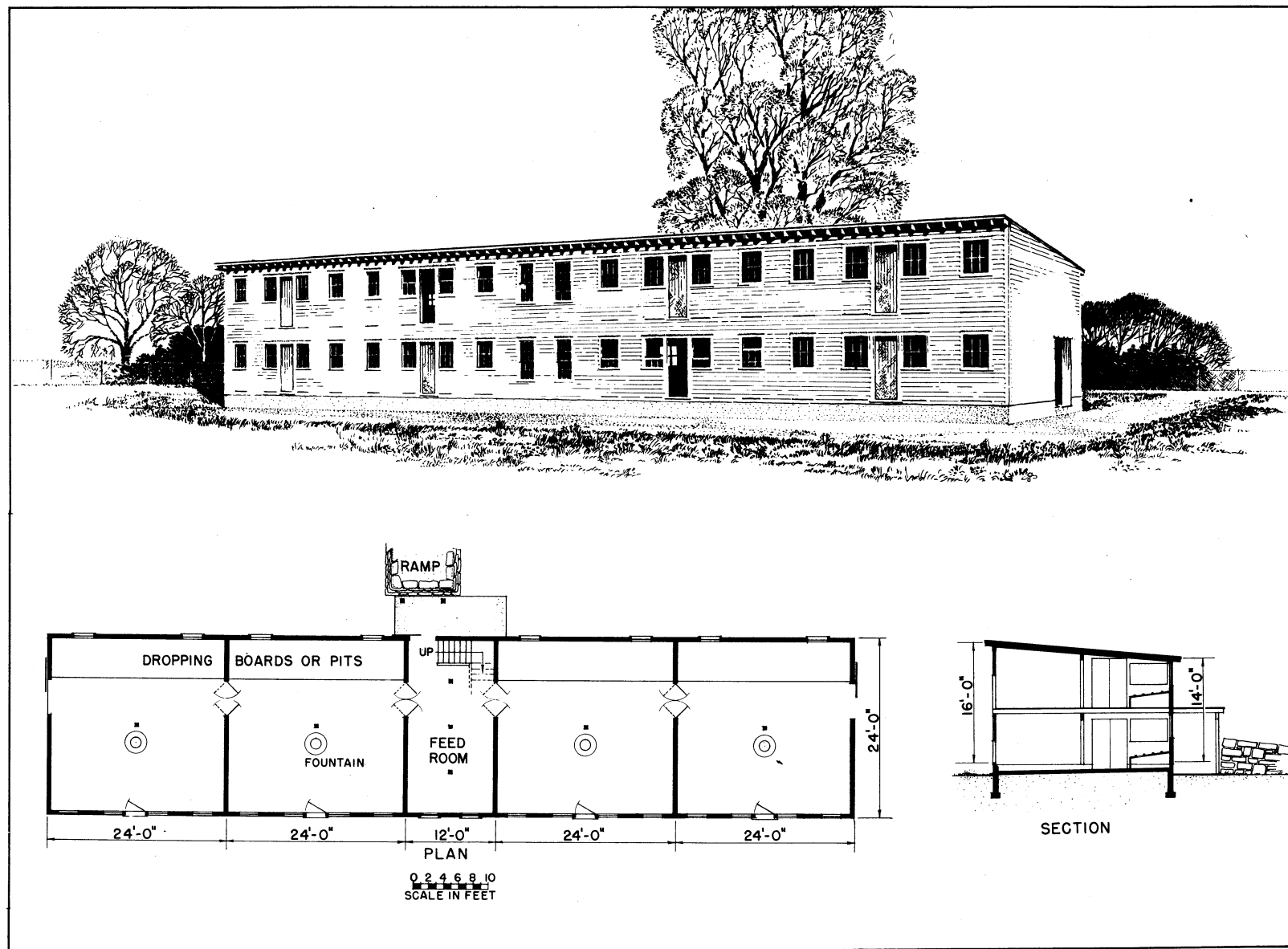


SHED-ROOF COLONY HOG HOUSE; two-pen.—The two-pen feature keeps building cost per litter low, and its adaptability makes a central house unnecessary. Adjustable doors permit ventilation, and the hinged sides are used as shades in the summer.

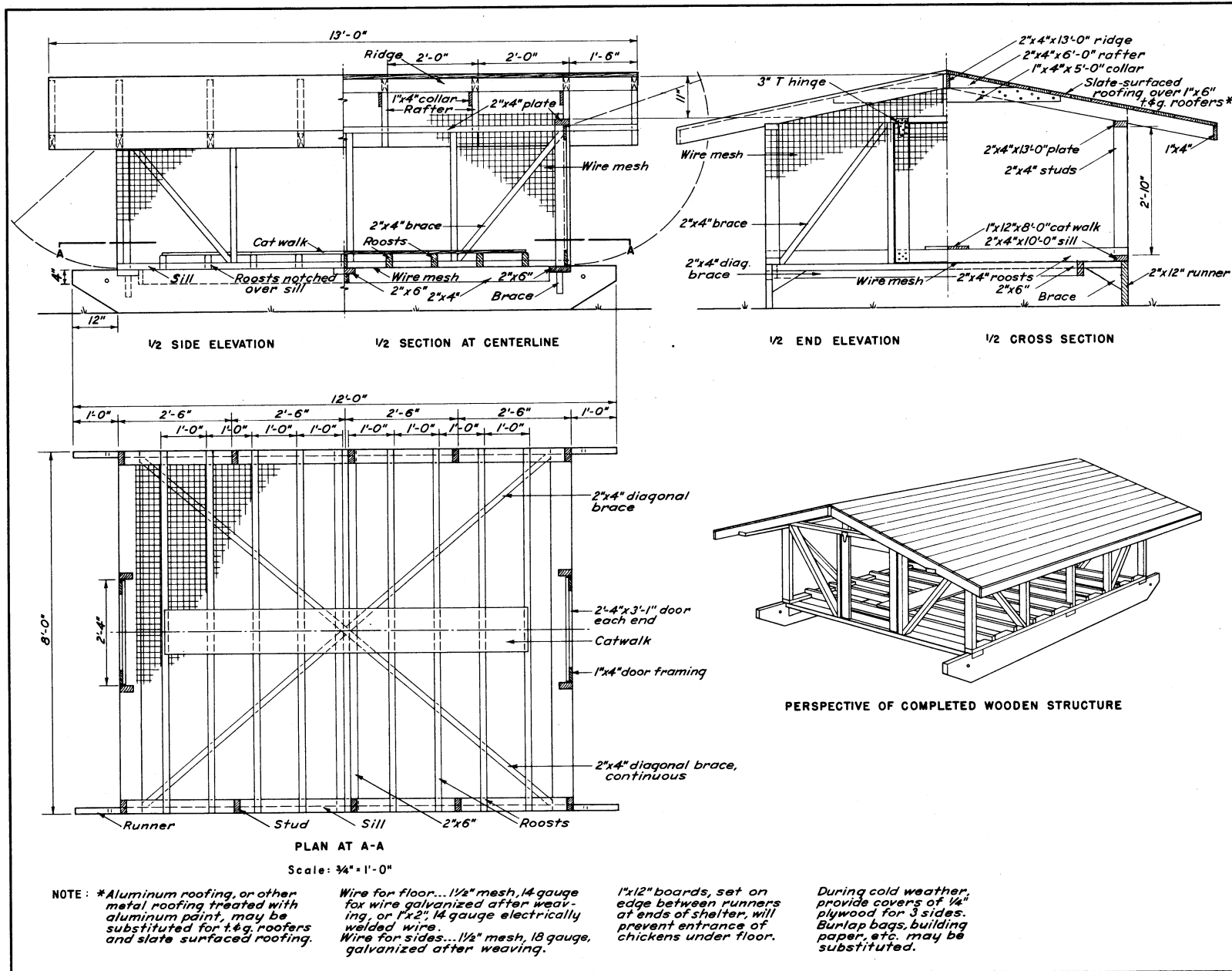


HOG SELF-FEEDER.—Accommodates 12 hogs at a time and will serve a medium-sized herd. Hinged boards over trough openings protect feed. Top may be hinged for filling. Bottom board of each hopper side is hinged; the hogs agitate the feed by pushing against the board while eating. Capacity: 17 bushels.

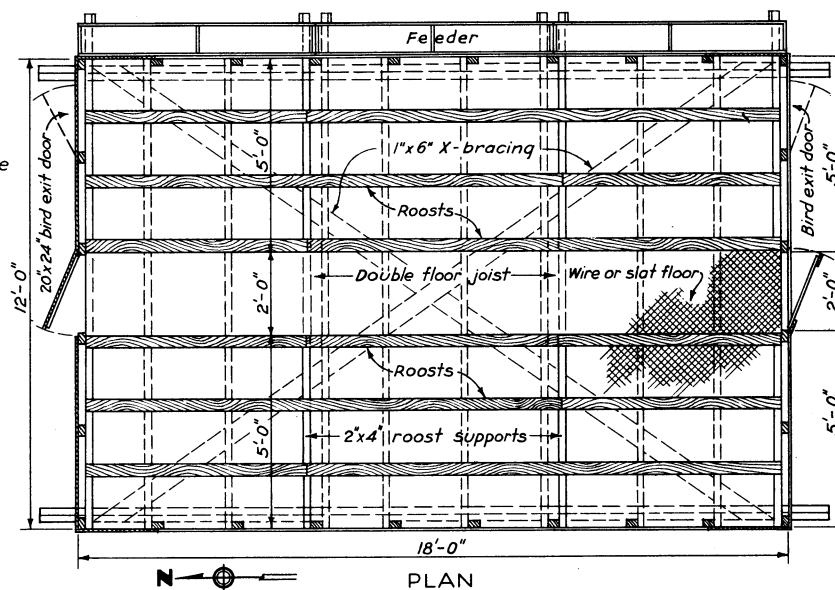
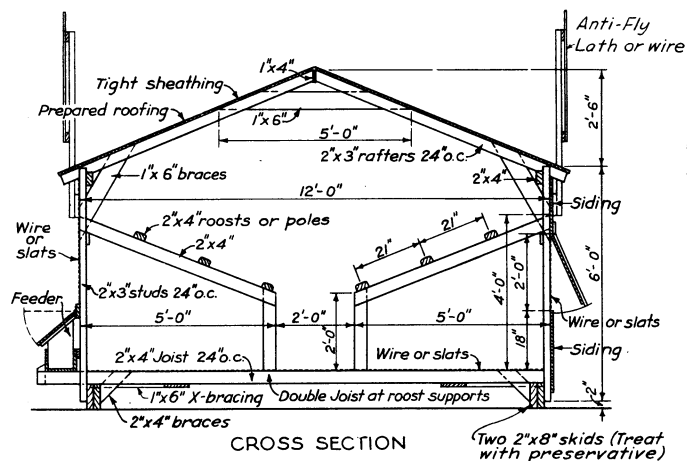
POULTRY HOUSES



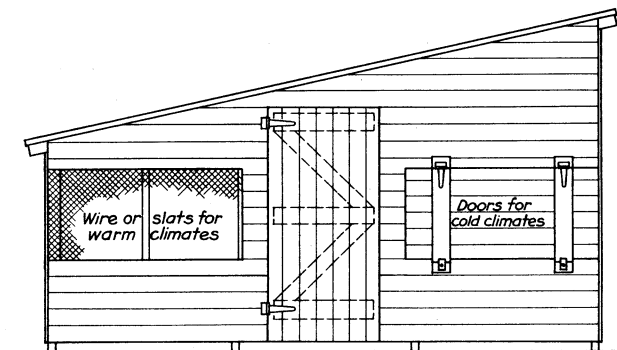
TWO-STORY POULTRY HOUSE; 24 feet wide.—Because of climatic variations within the region, no ventilating system is shown. The county agricultural agent or State agricultural engineer should be consulted about ventilation. Capacity: 160 small birds or 140 large birds per pen.



ALL-SEASON RANGE SHELTER FOR POULTRY; movable.—This 8- by 10-foot shelter is easily moved. In cold weather, sides may be covered with 1/4-inch plywood or with burlap or building paper. Capacity: 80 to 100 birds.



TURKEY RANGE SHELTER; movable.—Offers good protection for birds, and feeding and watering can be done inside. The antifly discourages birds from roosting on the roof. Capacity: 68 mature or 120 young birds.



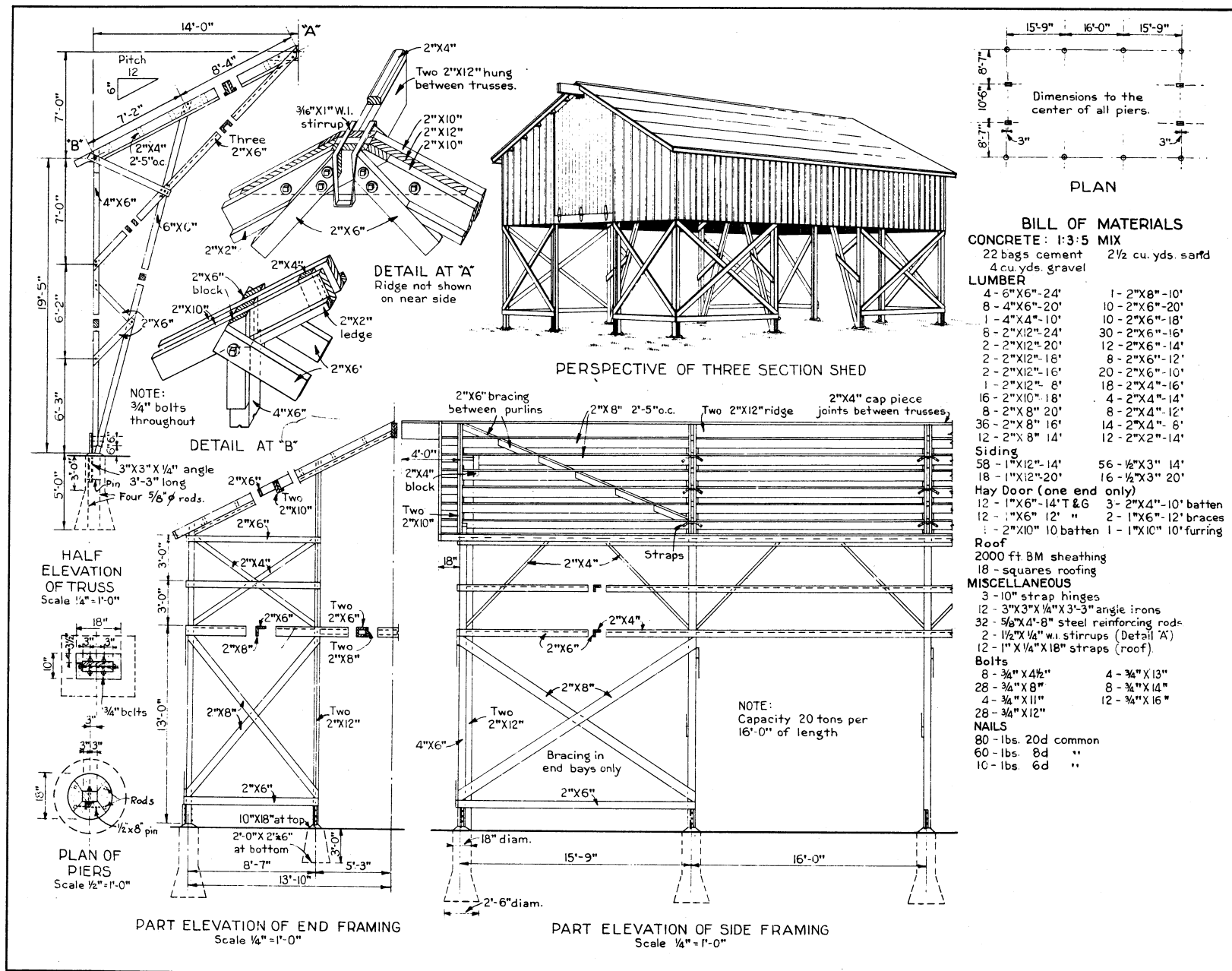
WEST ELEVATION

Note: All wood in contact with earth should be treated with preservative

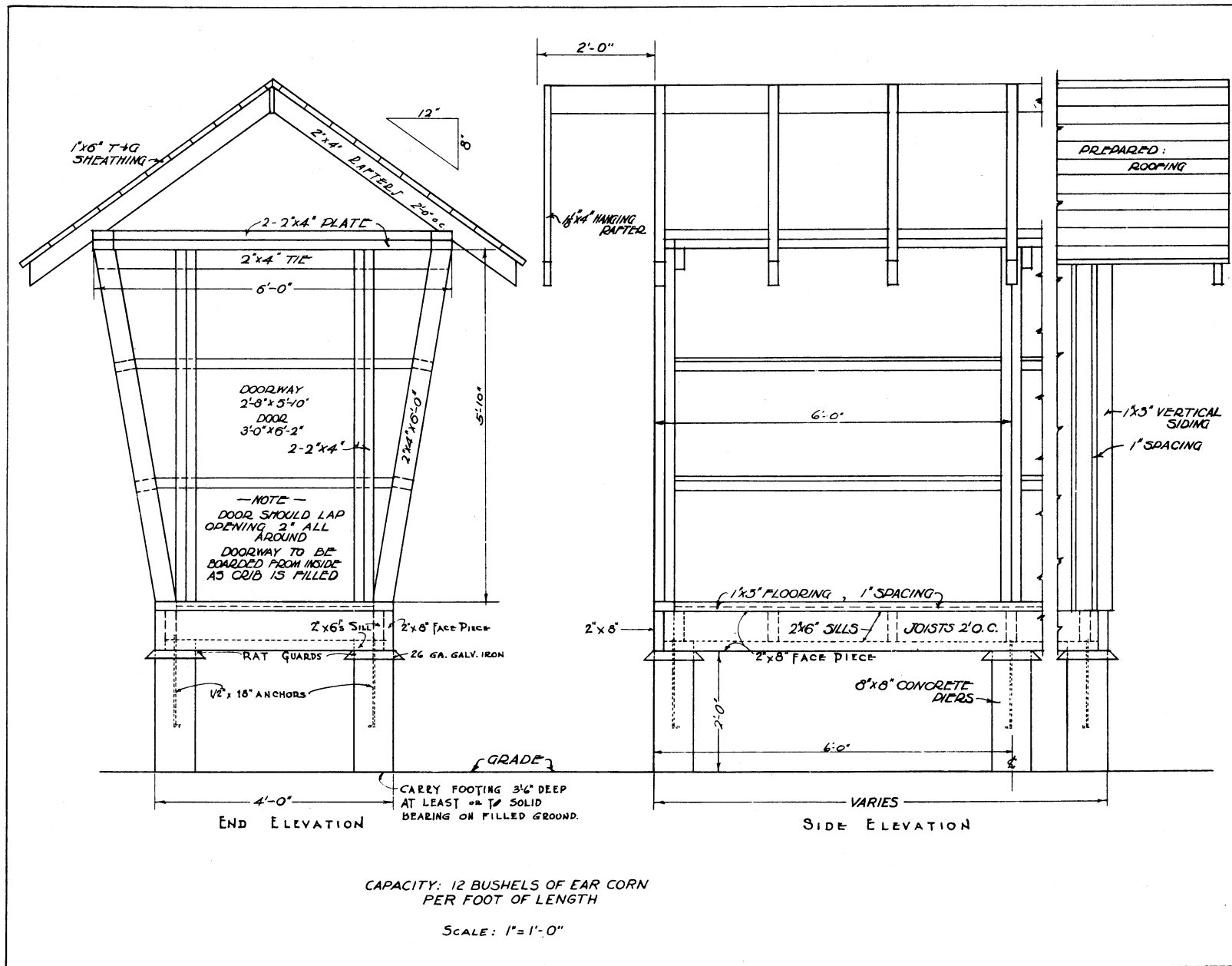


TURKEY RANGE SHELTER; 14- by 24-foot size.—Too heavy for frequent moving. X-bracing between skids should be provided if it is to be moved. Shelter provides good facilities for feeding and watering birds inside. Capacity: 96 mature or 168 young birds.

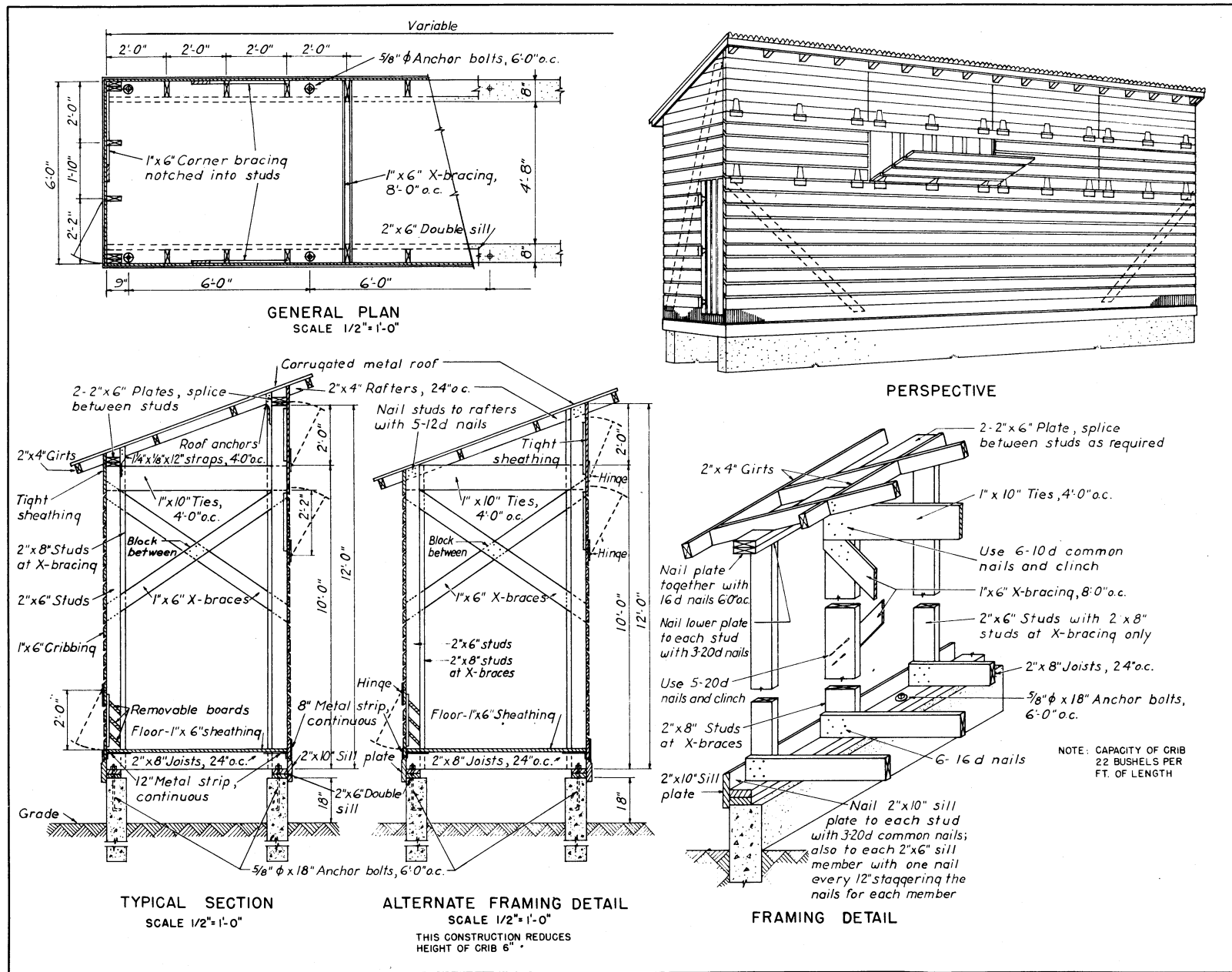
CRIBS AND STORAGES



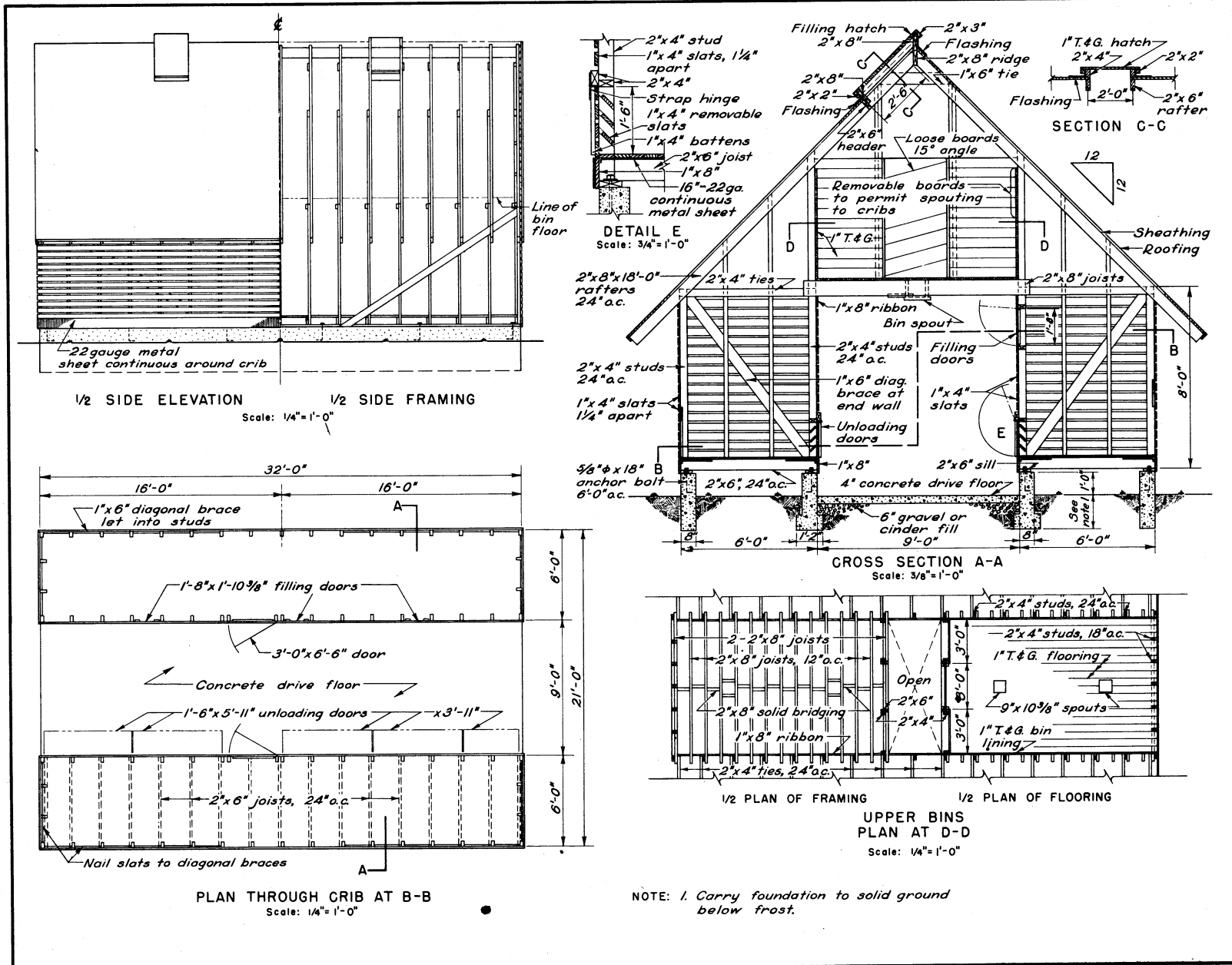
HAY SHED; 28 feet wide.—This economical shelter is designed in sections and can be made any desired length in 16-foot increments. It should be located on a well-drained site or encircled by a furrow to remove surface water. Capacity: 20 tons of loose hay per 16-foot section.



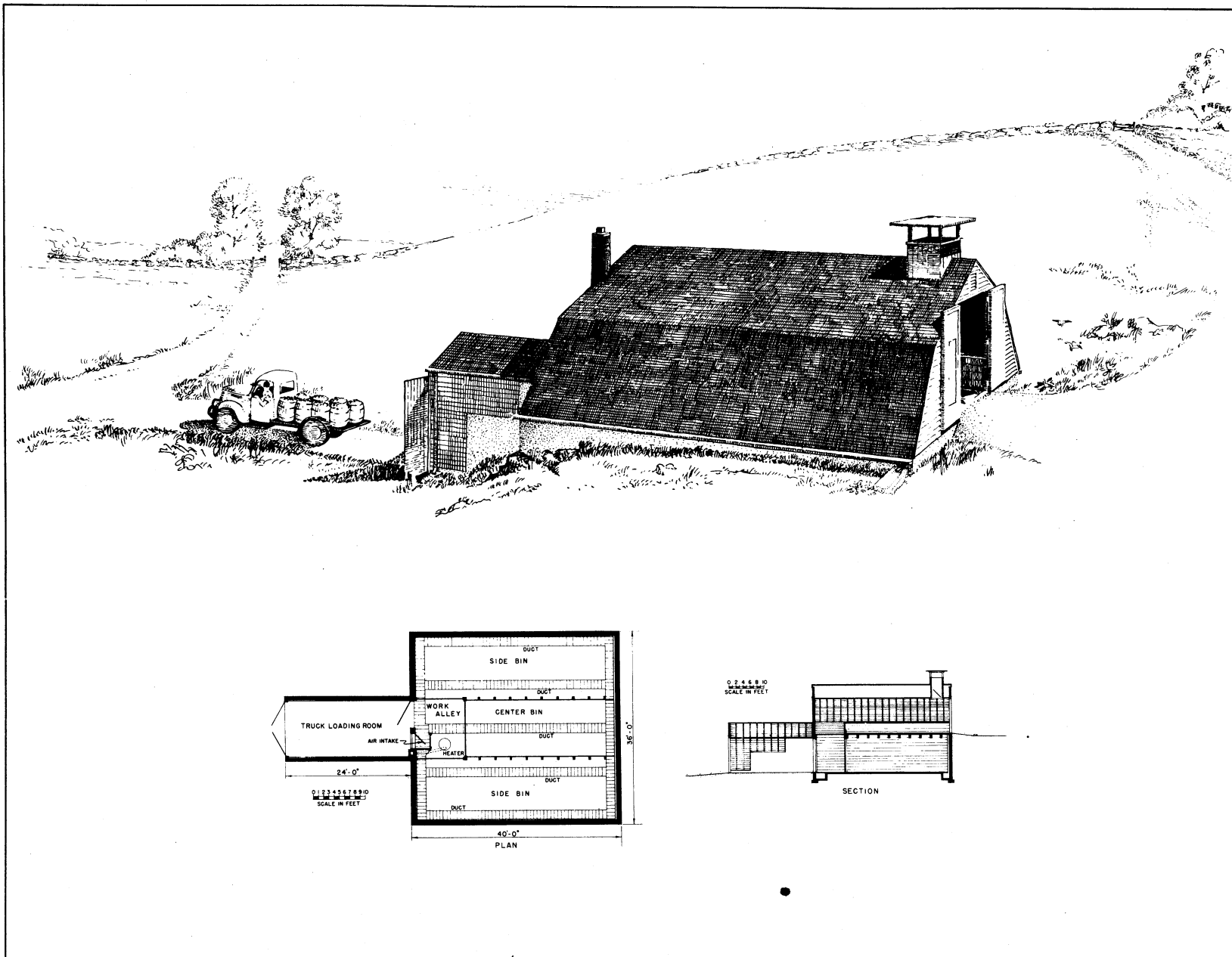
SINGLE CORNCRIB.—Low-cost crib for areas of high humidity or unfavorable drying conditions. Capacity: 12 bushels per foot of length.



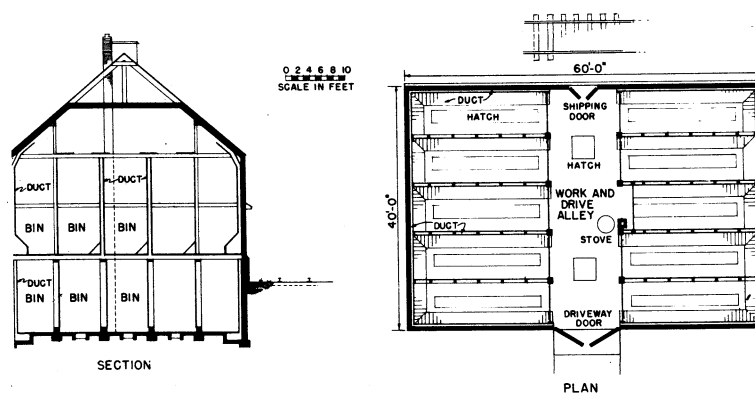
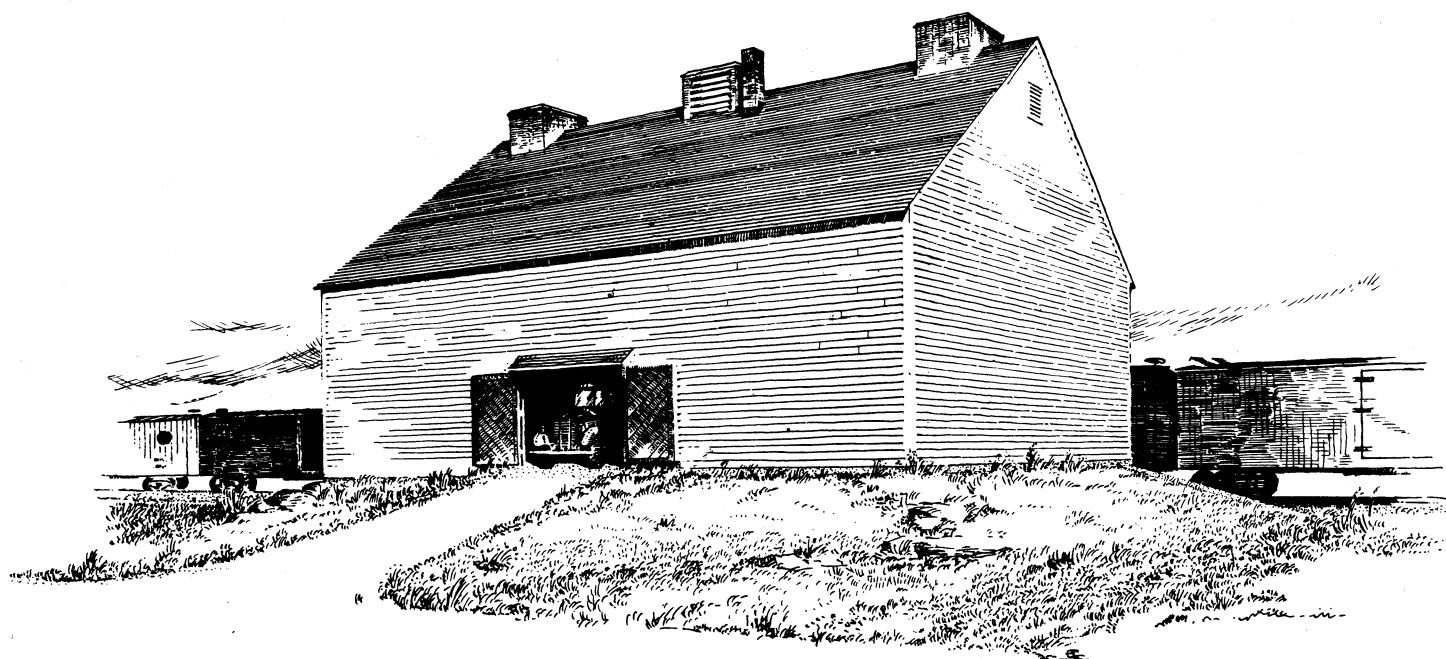
SINGLE CORNCRIB; 6 feet wide.—Crib is high and narrow to take advantage of drying winds. Loading and unloading doors are provided to make handling of the corn as easy as possible. Capacity: 22 bushels of ear corn per foot of length.



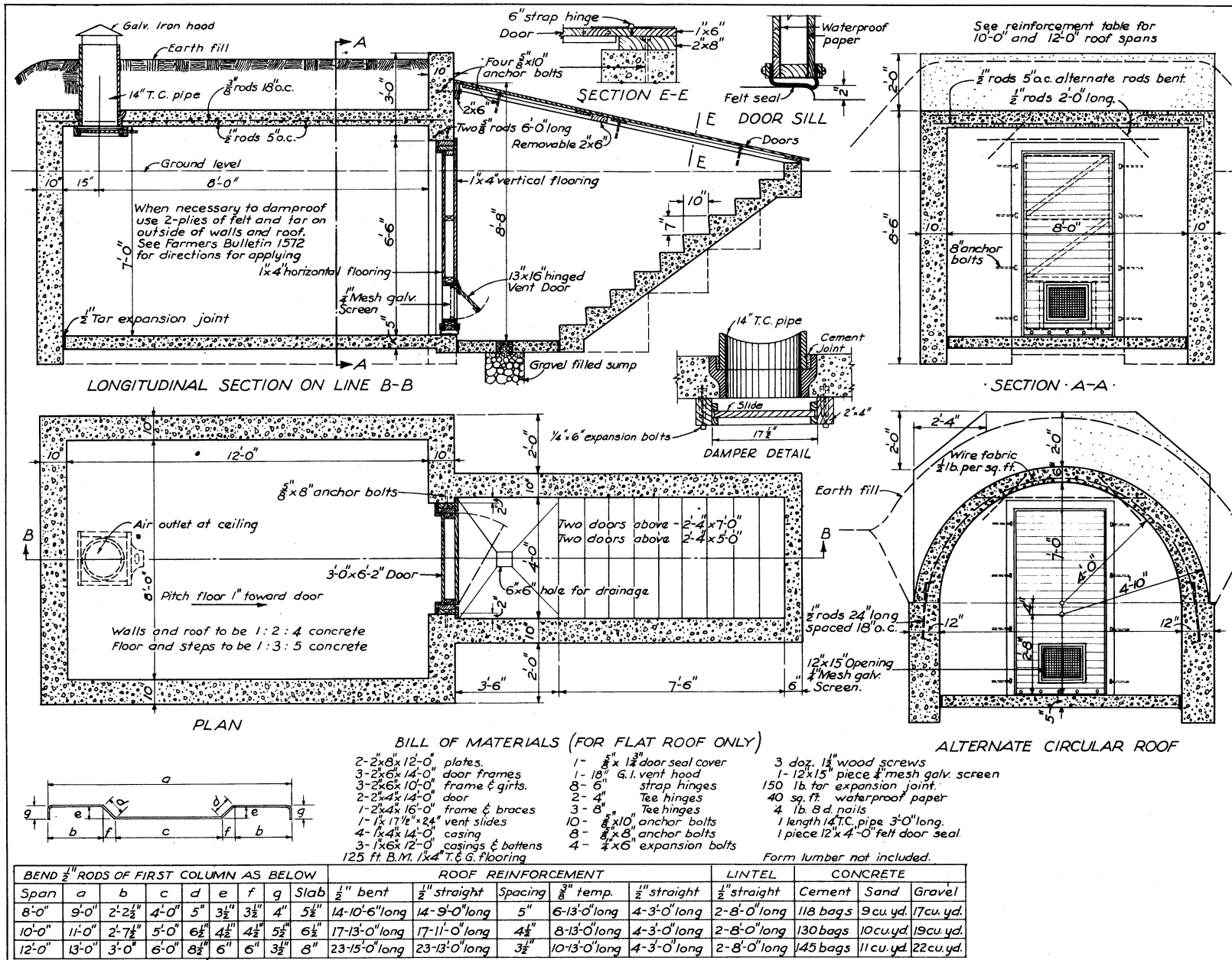
DOUBLE CORNCRIB AND GRANARY; 21 by 32 feet.—Provides storage for ear corn and for small grains in bins over the center drive. Capacity: 1,000 bushels of ear corn and 780 bushels of small grain.



MAINE-TYPE FARM POTATO STORAGE.—This below-ground house is adapted to a hillside site or may be built partially above grade and banked with earth. Designed for gravity-air circulation through floor and wall ducts and for supplemental stove heat. Capacity: 3,500 barrels (9,600 bushels).

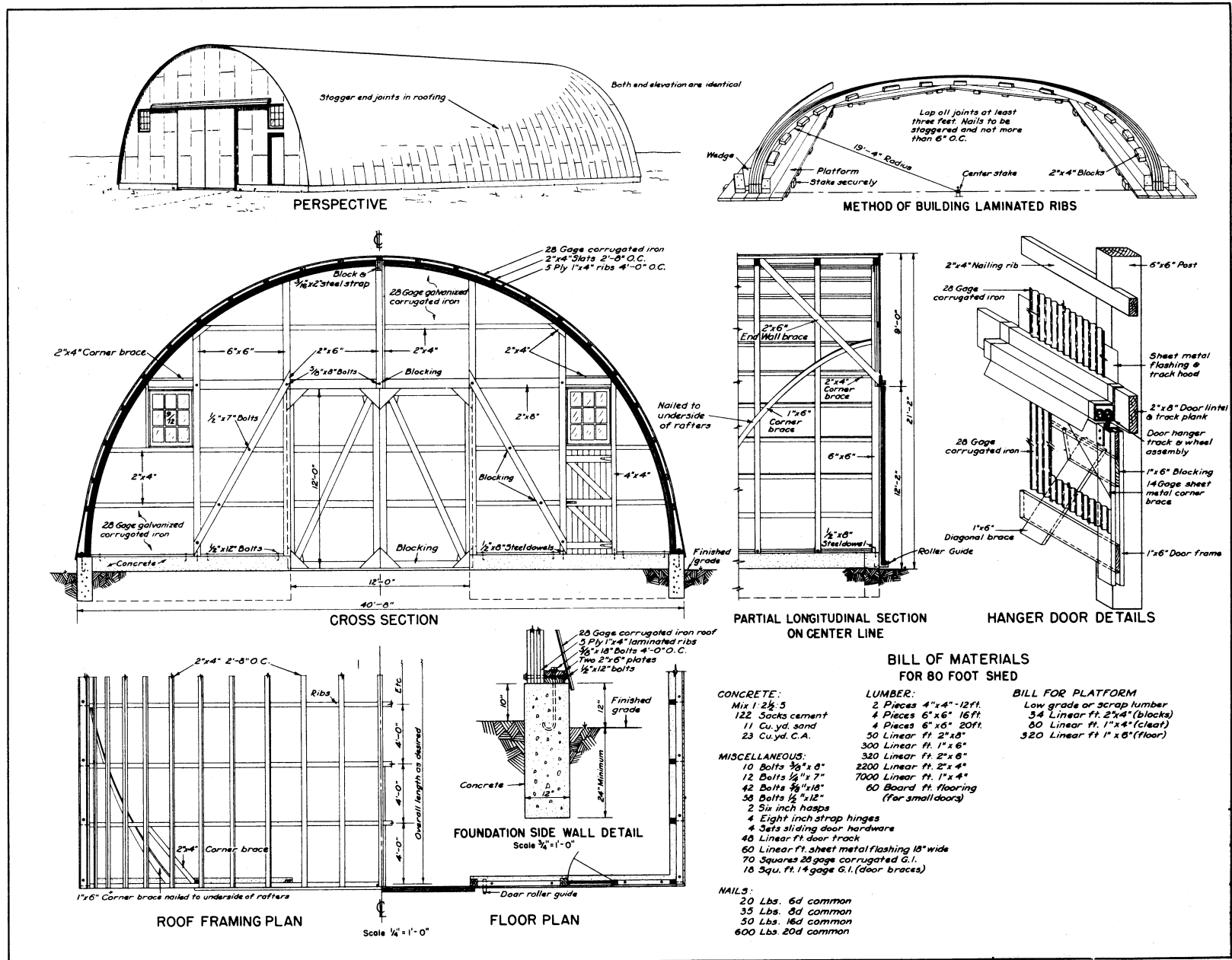


MAINE-TYPE TRACKSIDE POTATO STORAGE.—Grading and shipping are done from the work alley, and barrels are raised or lowered by a power hoist. Designed for gravity-air circulation through wall and floor ducts and for supplemental stove heat. Capacity: 10,000 barrels (27,500 bushels).



VEGETABLE CELLAR.—This outside cellar may be located entirely below ground, or partly above with a covering of earth for insulation. Capacity: 280 to 500 bushels.

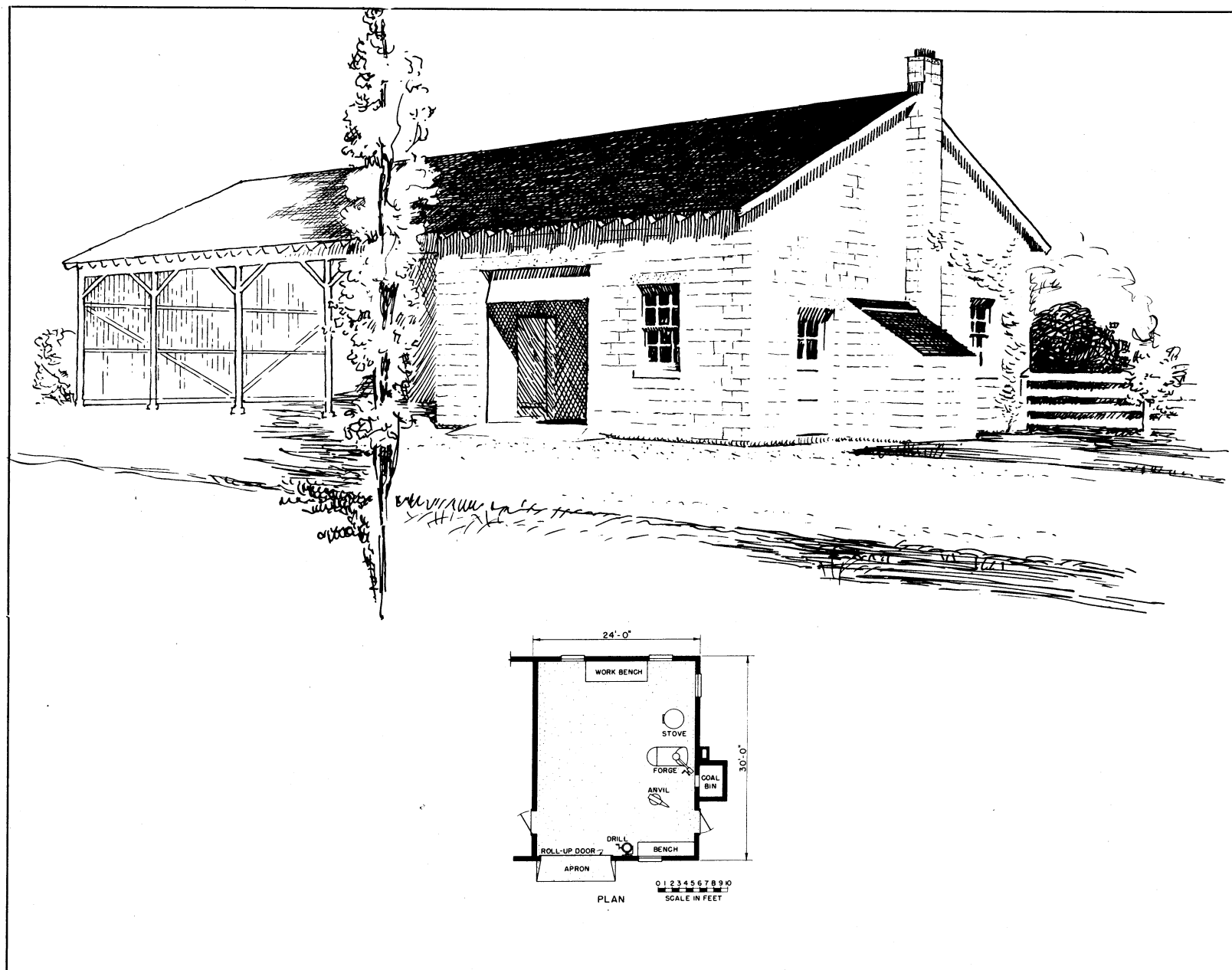
EQUIPMENT AND SUPPLY BUILDINGS



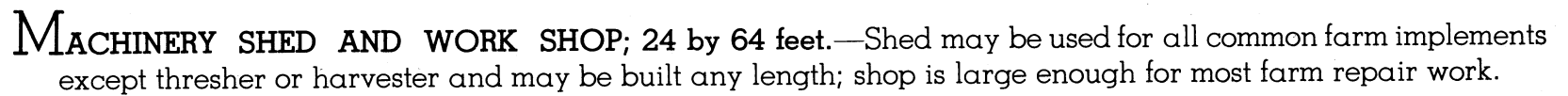
STORAGE SHED; 40 feet 8 inches wide, length optional.—Used for overnight and rainy-day storage of loads of hay or grain; also for overnight storage of tractors and attached implements. Rafters may be either home- or factory-made.

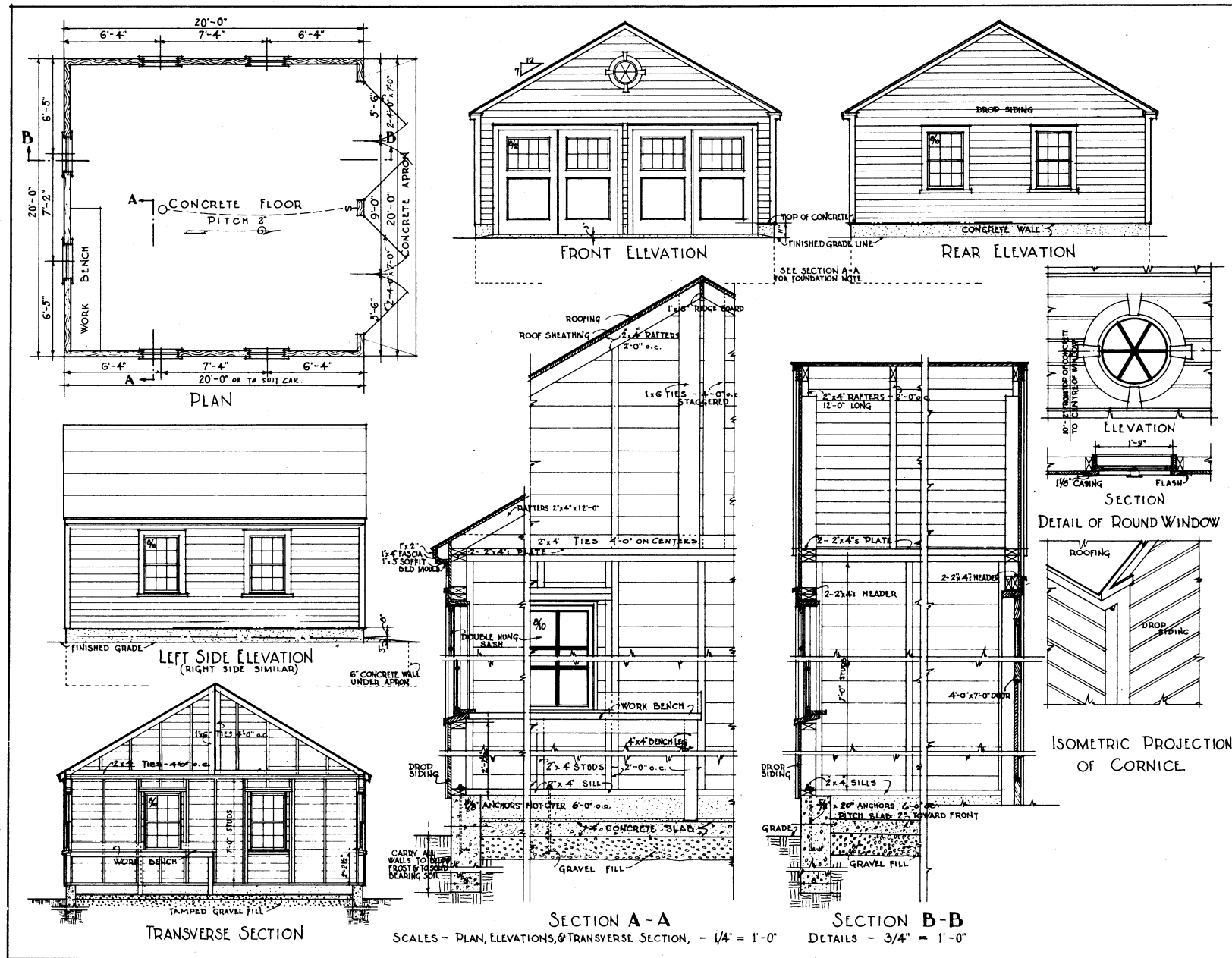
DRAWING No.
5678
(1 sheet)

Not illustrated:
DRAWING No.
5146
(1 sheet)
Frame
construction

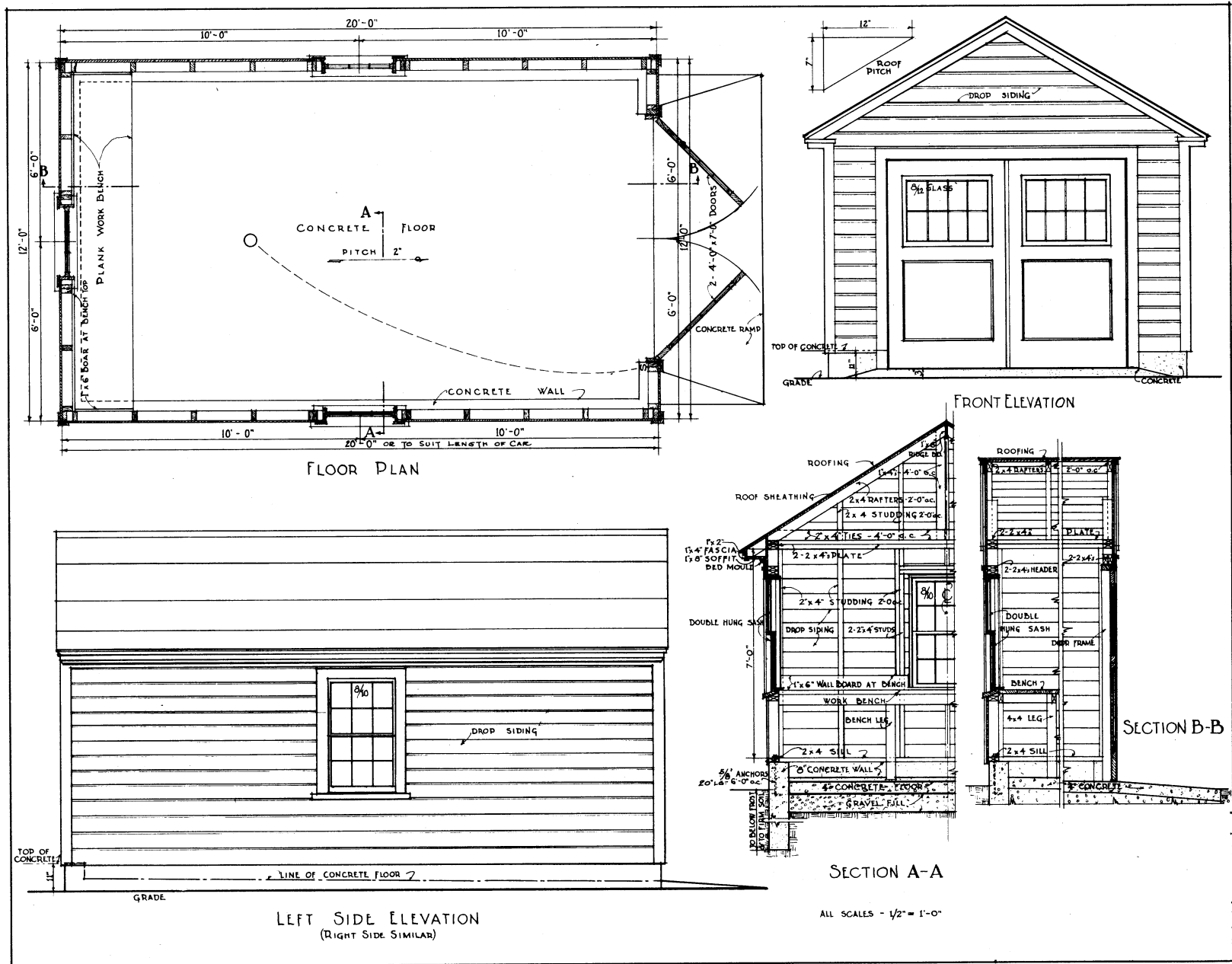


FARM SHOP; masonry construction, 24 by 30 feet.—Accommodates most farm machines while repairs are being made. Provides space for metal-working equipment near the forge as well as for wood-working machinery and a bench.

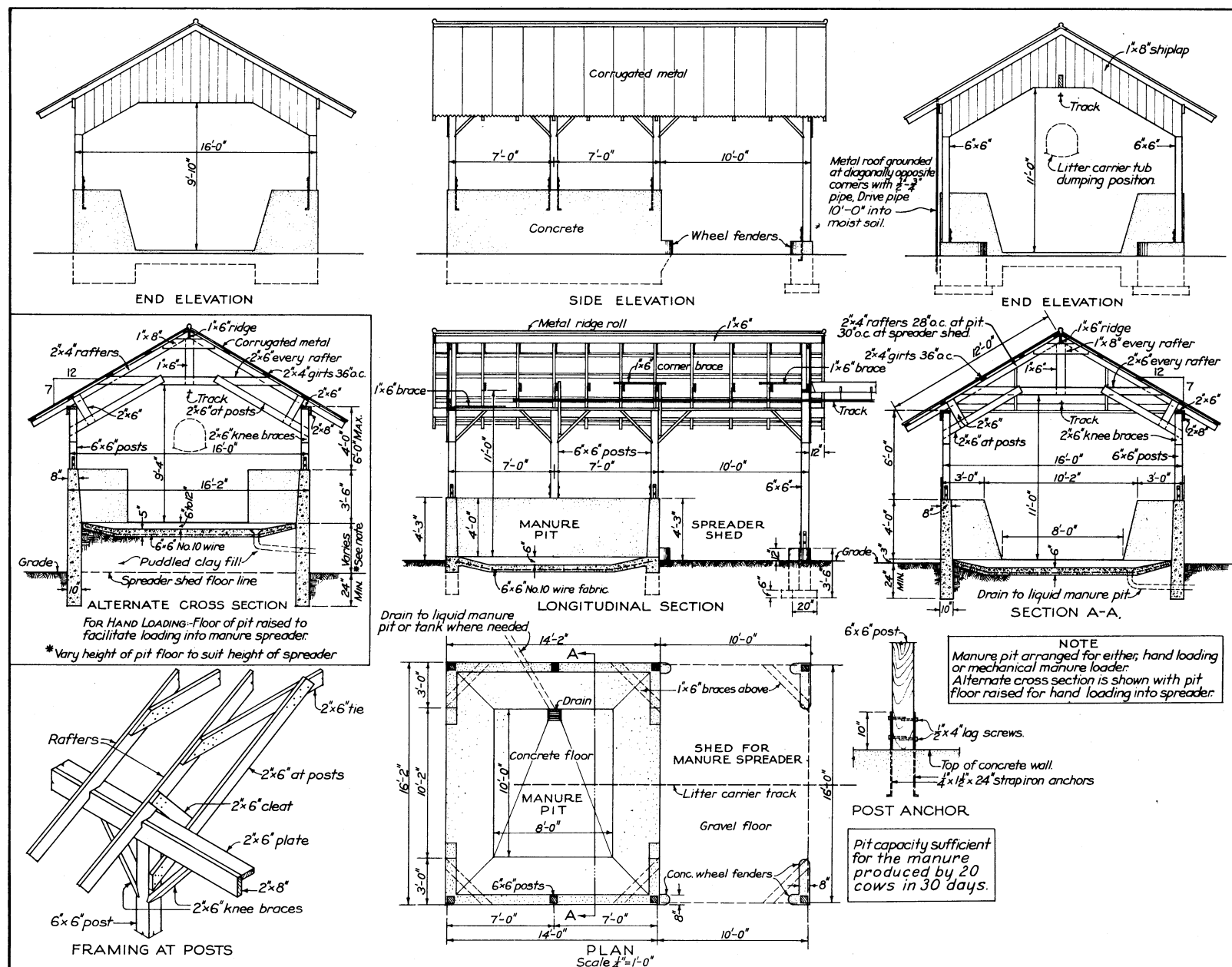




TWO-CAR GARAGE; 20 by 20 feet.—Large enough for most modern cars, but can be made longer if desired. No interior posts block the floor, and there is room for a workbench for minor repairs. If walls are made of masonry, inside dimensions should be kept the same.

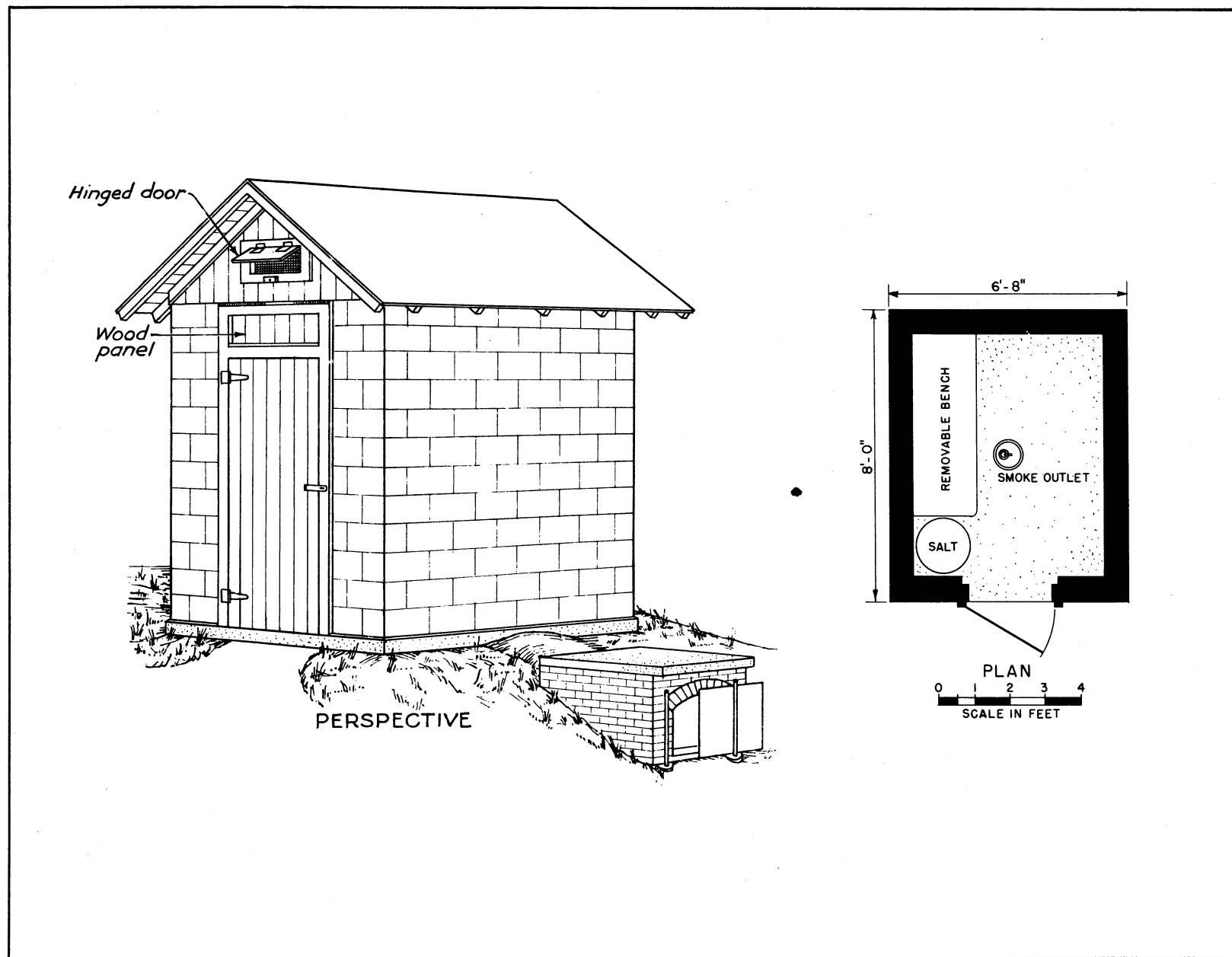


ONE-CAR GARAGE; 12 by 20 feet.—A gravel or cinder floor may be used in place of concrete to keep the cost down. Overhead, instead of hinged, doors may be used. If walls are made of masonry, inside dimensions should be kept the same.

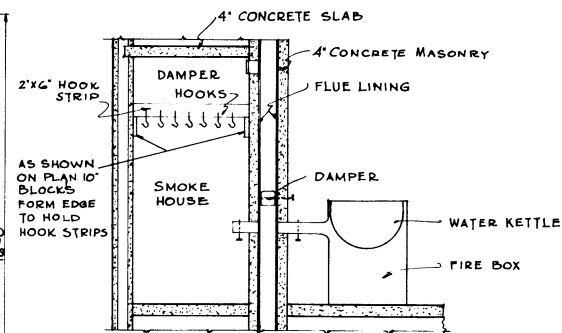
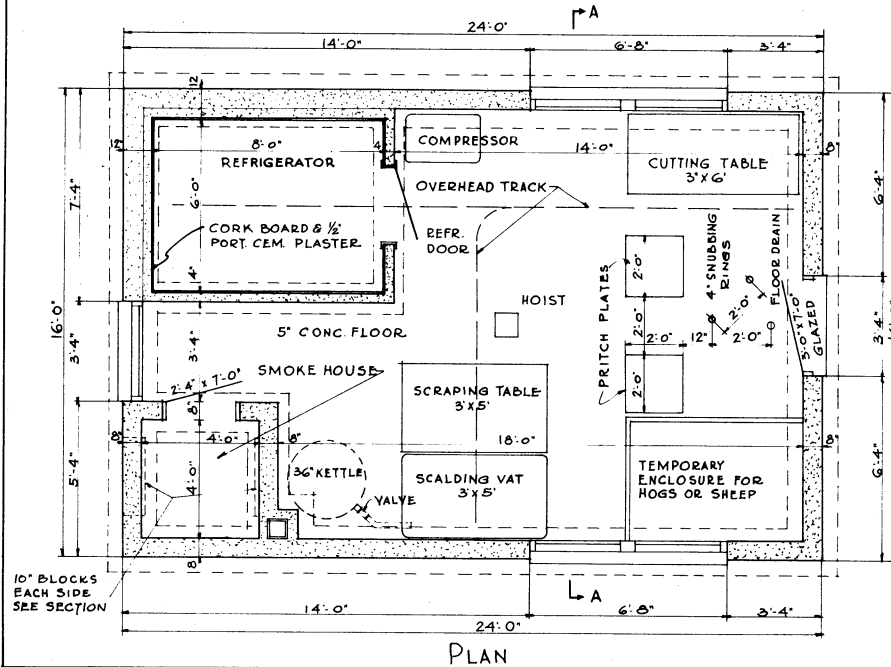
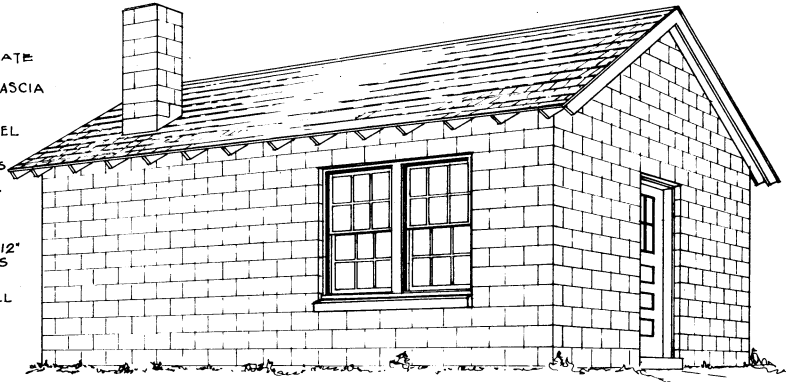
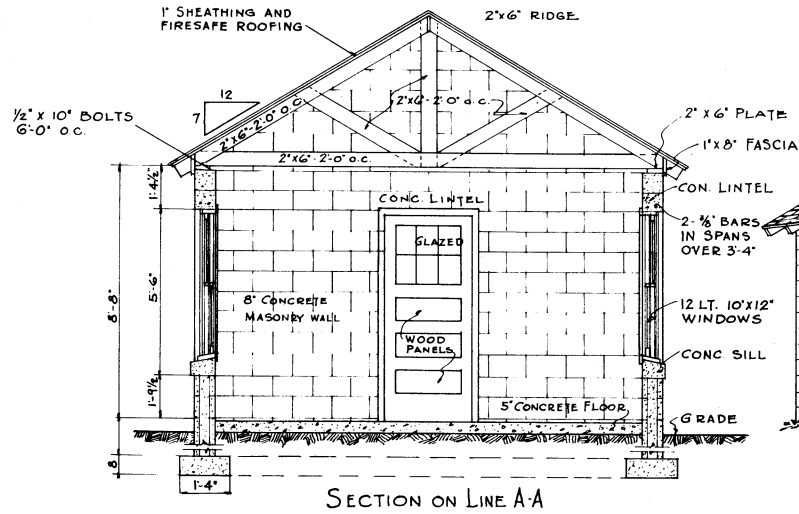


MANURE PIT; 16 by 24 feet.—Floor of pit may be built at grade level or raised so that manure can be shoveled on to a spreader with less effort. Local authorities should be consulted about location of pit in relation to milk house and barn. Capacity: Sufficient for manure produced by 20 cows in 30 days.

BUILDINGS FOR PROCESSING

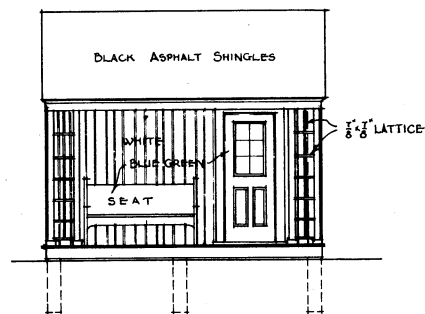


SMOKEHOUSE; 6 by 8 feet.—From the standpoint of fire safety, masonry walls are recommended. The outside firebox reduces fire hazard and danger of overheating the meat and also makes it easy to add fuel to the fire. Opening the ventilation flap in gable away from the wind improves the draft. Capacity: 24 to 30 hams.

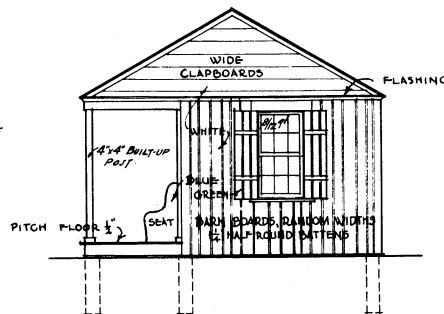


FARM SLAUGHTERHOUSE.—This building for slaughtering, processing, and storing meat for home use or for sale provides space for a 3- or 4-man crew to slaughter and process either 24 sheep, 12 to 18 hogs, 3 or 4 cows, or 18 calves at one time.

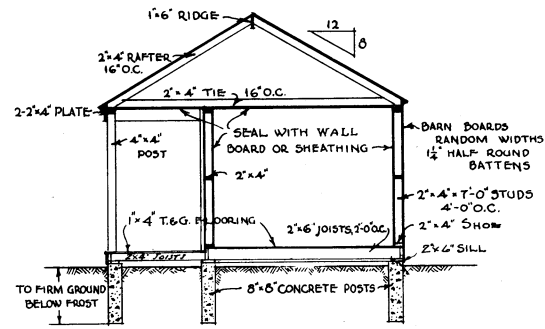
TOURIST CABINS, CAMPS, AND CAMP EQUIPMENT



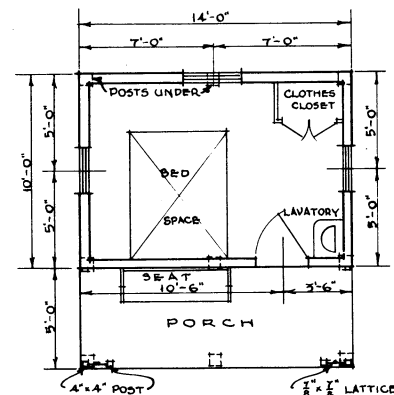
• FRONT • ELEVATION •



• SIDE • ELEVATION •



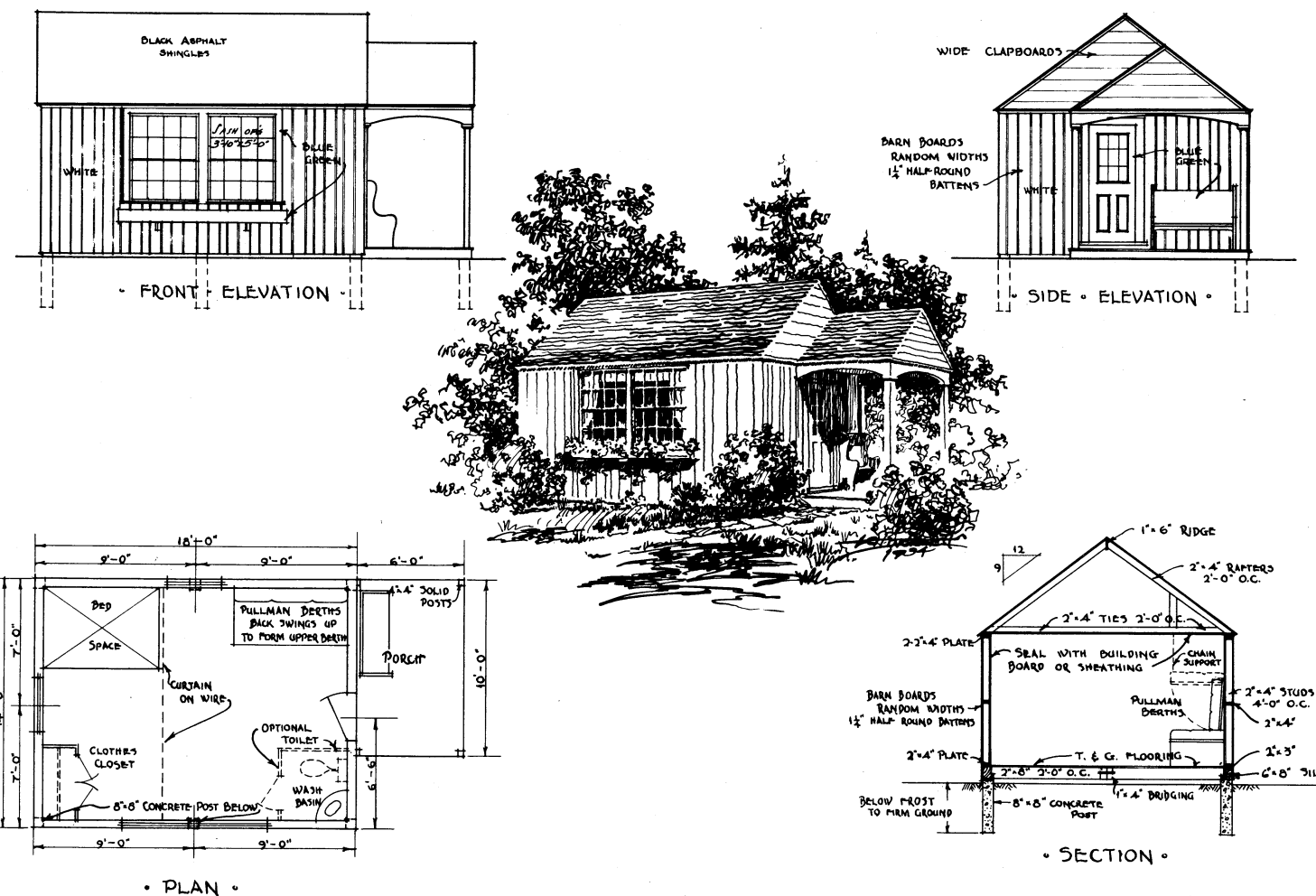
• SECTION •



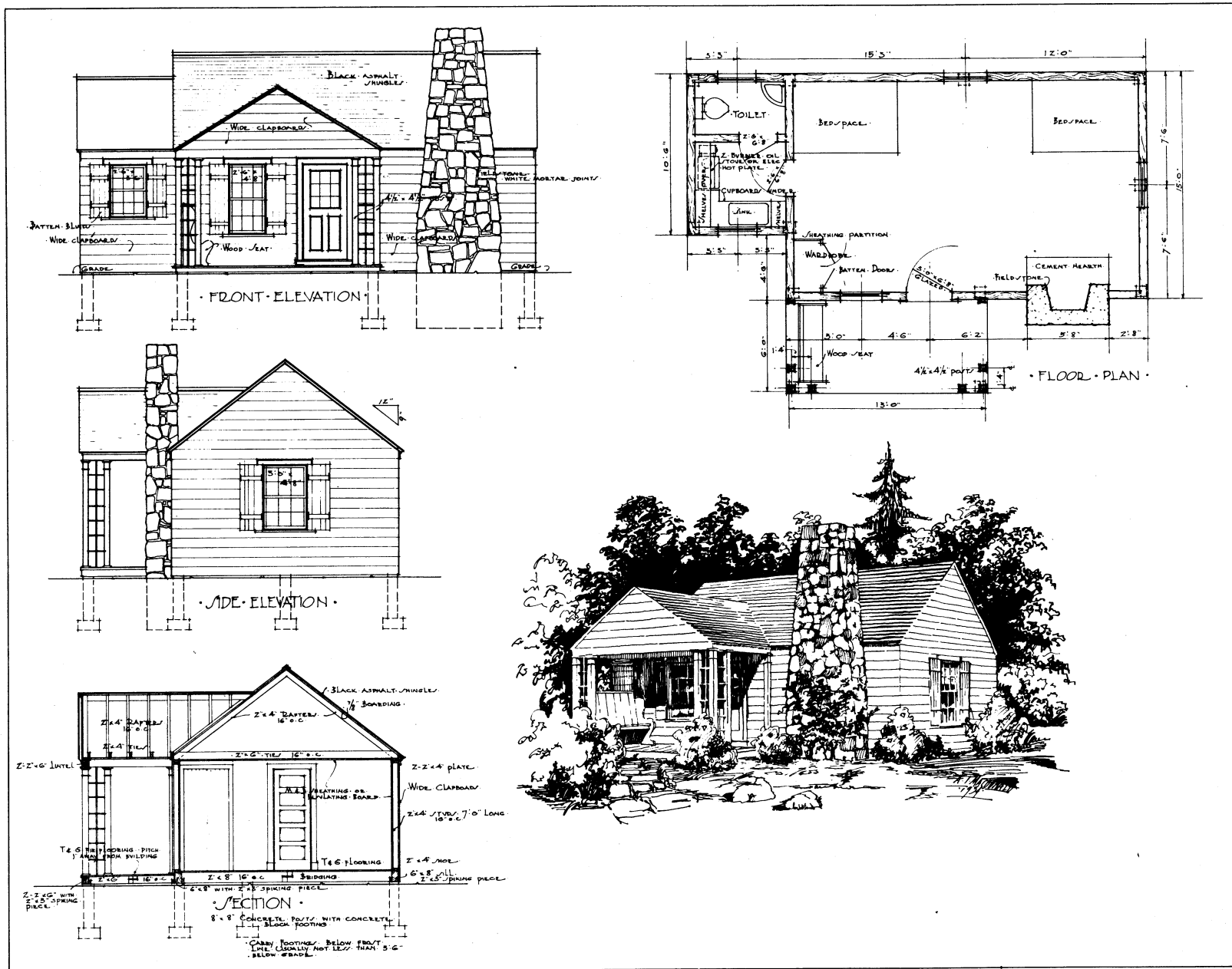
• PLAN •

SCALE THROUGHOUT $\frac{1}{4}'' = 1'-0''$

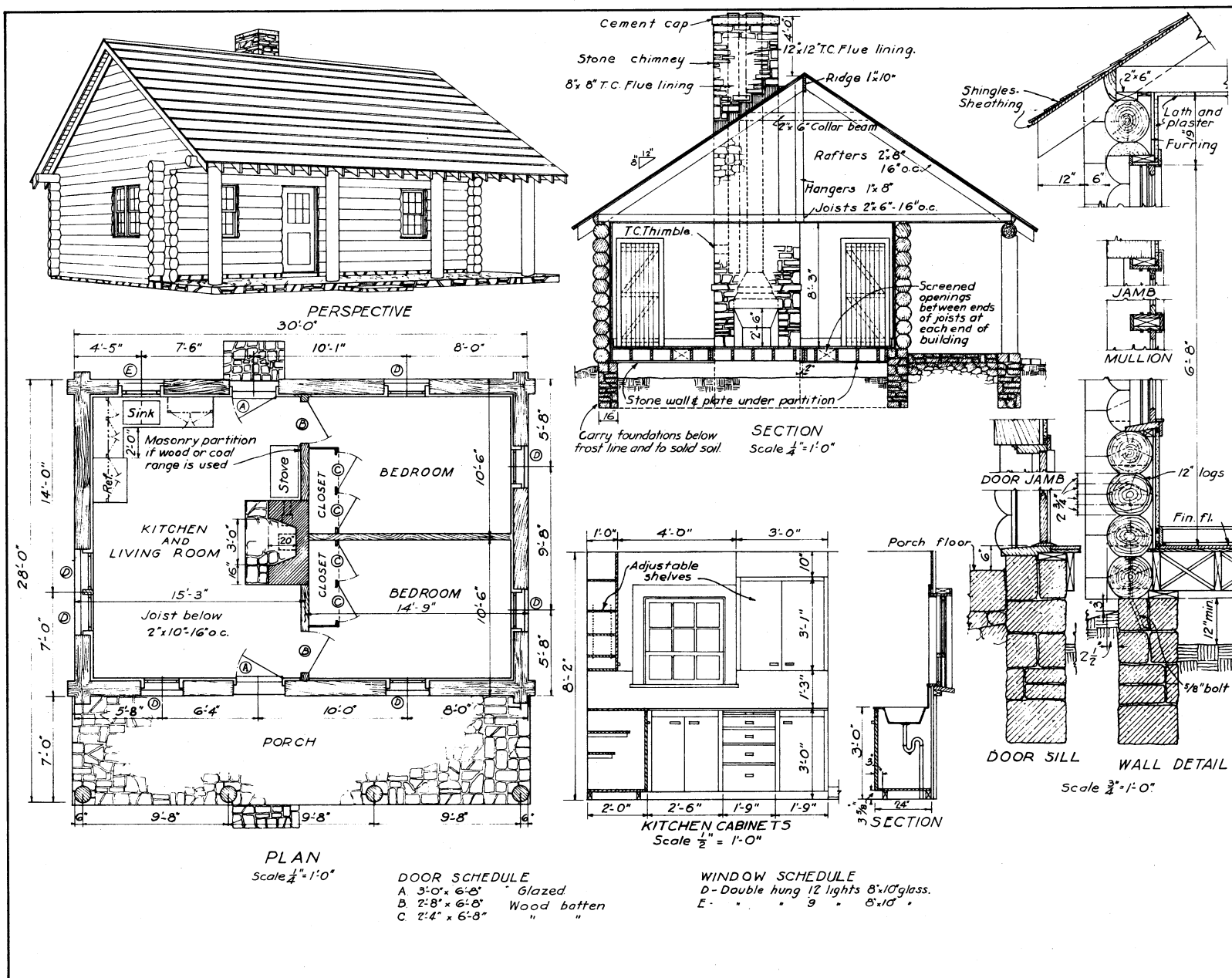
TOURIST CABIN FOR TWO PERSONS.—This low-cost one-room cabin may be set on piers to reduce construction costs. Where termites are a problem, the floor can be made of concrete. If a wood floor is used in such areas, joists and sills should be chemically treated.



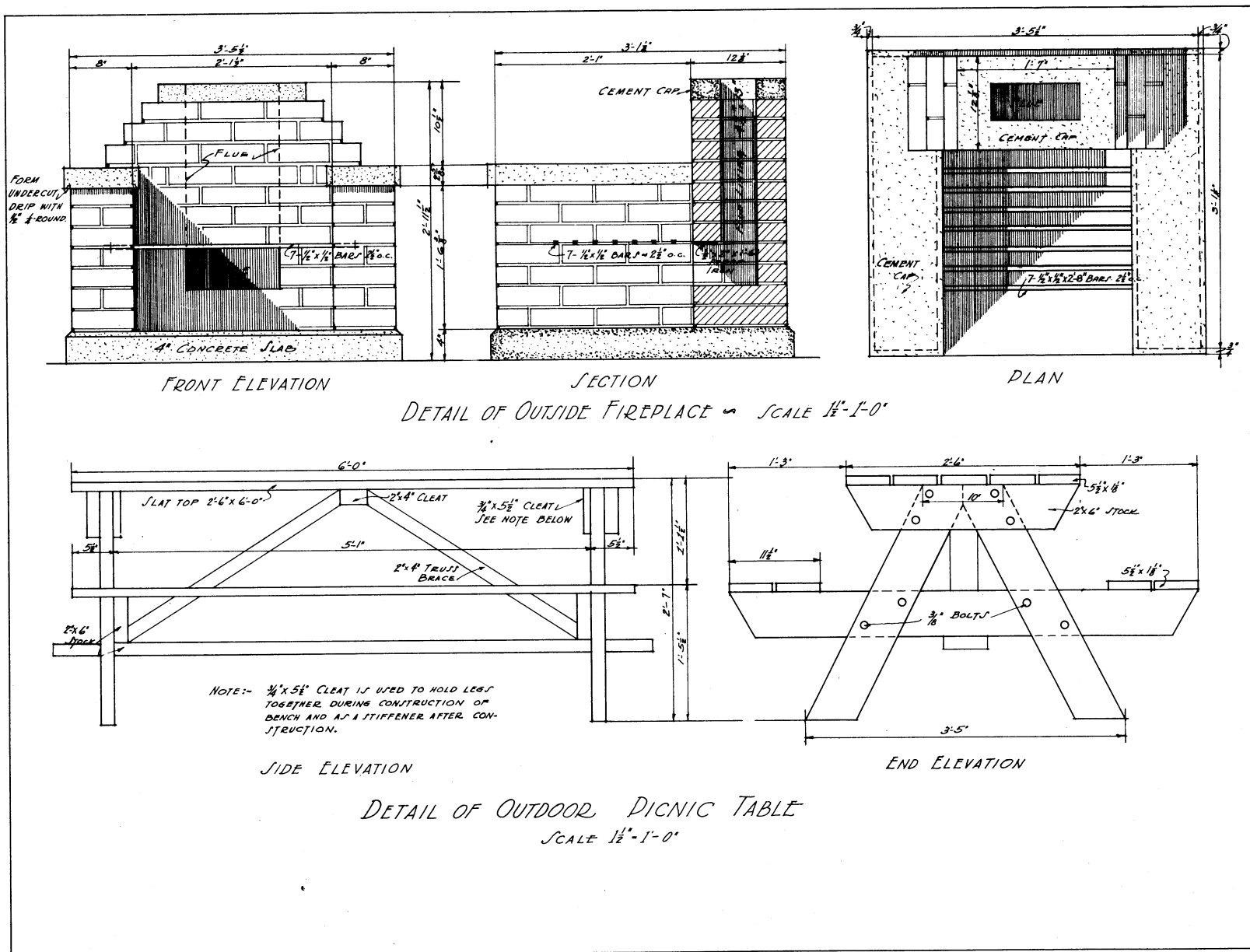
TOURIST CABIN FOR FOUR PERSONS.—This economical building provides for Pullman-type berths. If a central heat source is not practical, a chimney should be added to provide for a heater. Sills should be protected from termite attack.



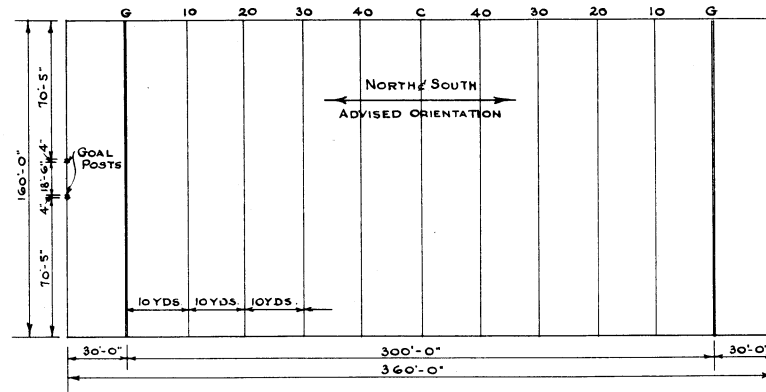
CAMP BUILDING.—This building is suitable for 4-H and other club or community activities. By using bunk beds the sleeping capacity of the cabin can be increased to 6 or 8 persons. For a rustic effect, walls may be of logs.



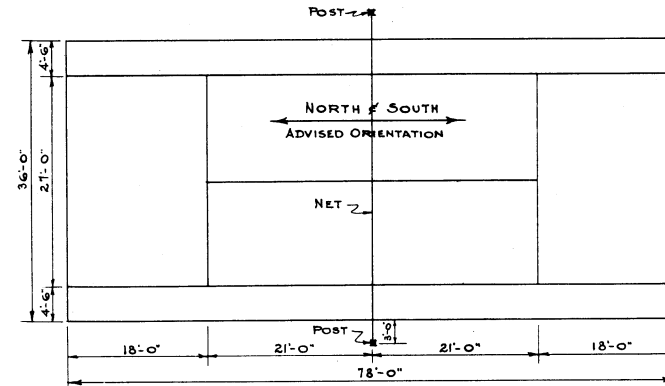
THREE-ROOM LOG CABIN.—Suitable for a camp location in the woods or on a lake shore. Since the house is planned as a summer home, a large porch is provided. Porch posts of peeled logs add to the appearance of the building.



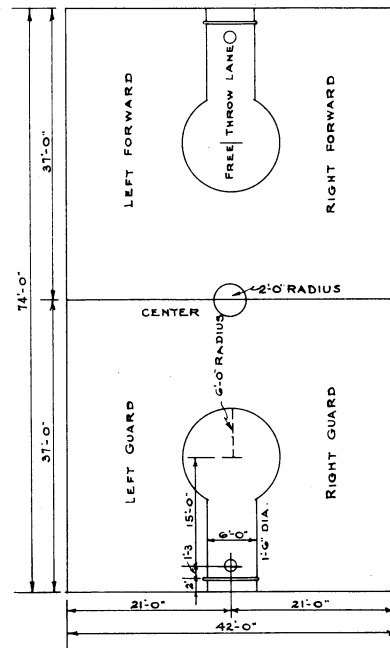
OUTDOOR FIREPLACE AND TABLE.—The fireplace and grill is large enough to cook camp meals for 10 to 20 persons; it can also be used as a trash burner. The table accommodates 6 persons comfortably.



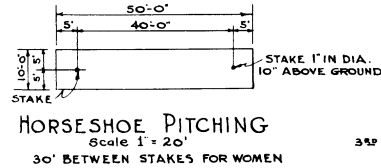
FOOTBALL FIELD
Scale 1"=40'



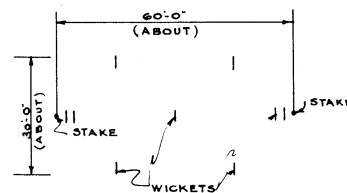
TENNIS COURT
Scale 1"=10'



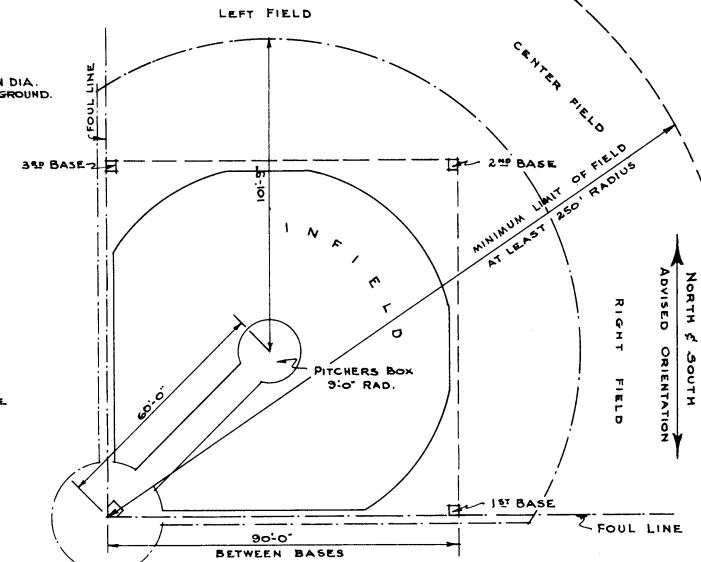
BASKETBALL COURT
Scale 1"=10'



HORSESHOE PITCHING
Scale 1"=20'
30' BETWEEN STAKES FOR WOMEN



CROQUET
Scale 1"=20'



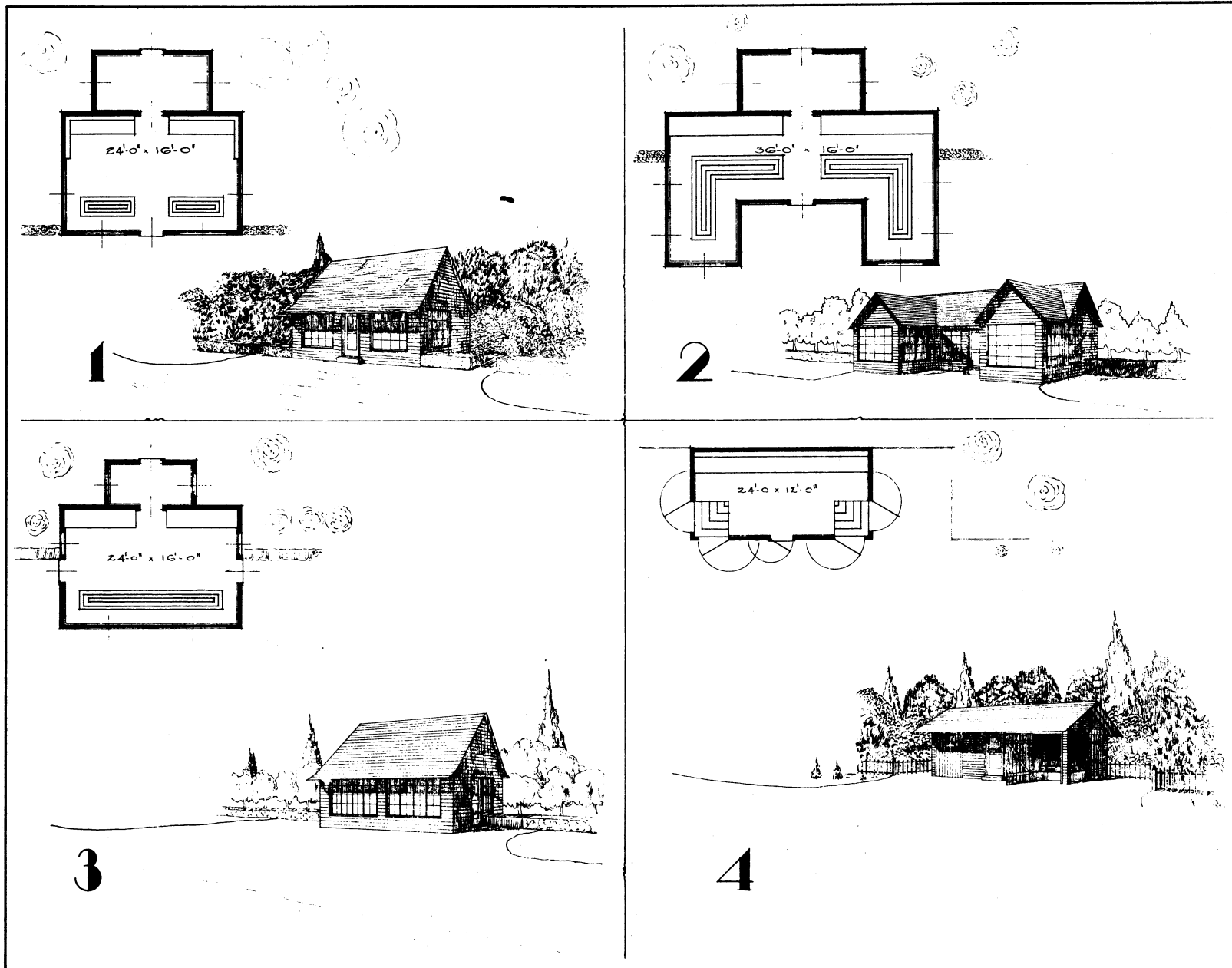
BASEBALL DIAMOND
Scale 1"=20'

NOTE:-
FOR SOFTBALL USE FOLLOWING:-
PITCHERS BOX TO HOME PLATE, 40 FEET
DISTANCE BETWEEN BASES 60 FEET

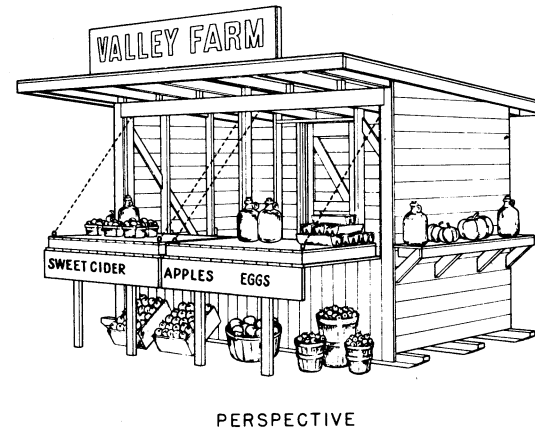
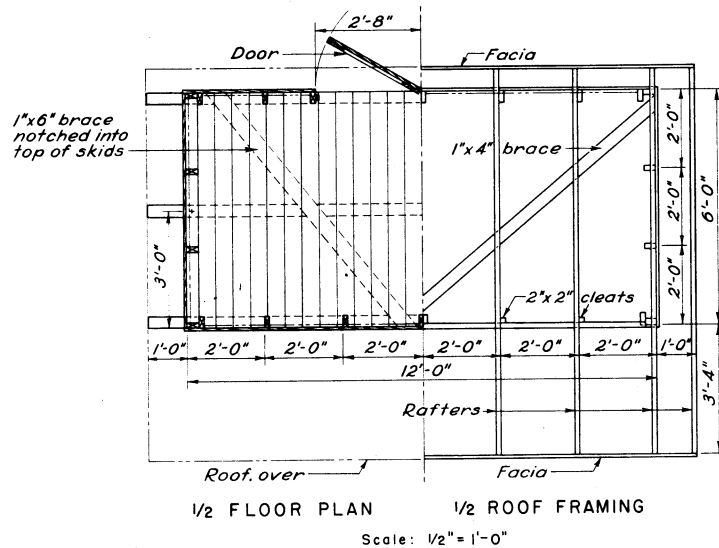
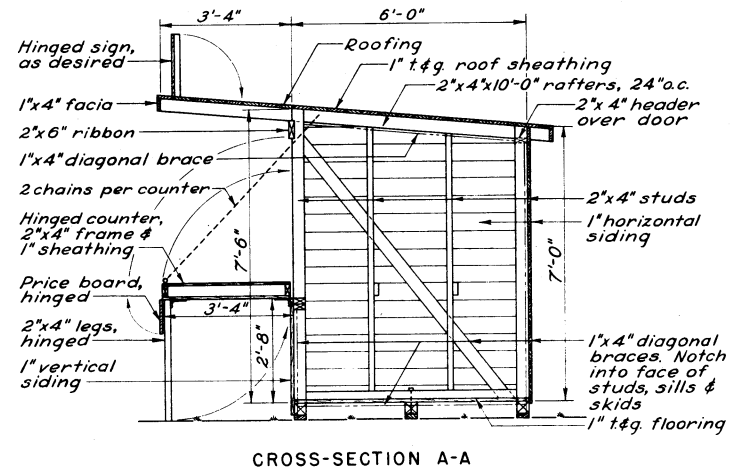
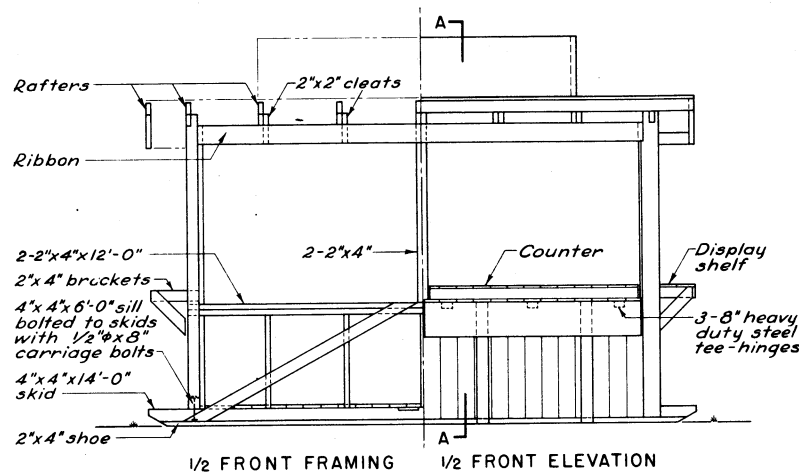
NOTE:-
JUNIOR HIGH SCHOOL AGE (AS SHOWN)
HIGH SCHOOL AGE 30 X 84 FEET
COLLEGE AGE 30 X 90 FEET

PLAYGROUND LAY-OUTS.—Drawing gives dimensions and boundary lines for athletic fields of the types most often needed for fairgrounds and club recreational facilities. As illustrations give dimensions of the playing area only, additional space for spectators should be provided.

ROADSIDE MARKETS

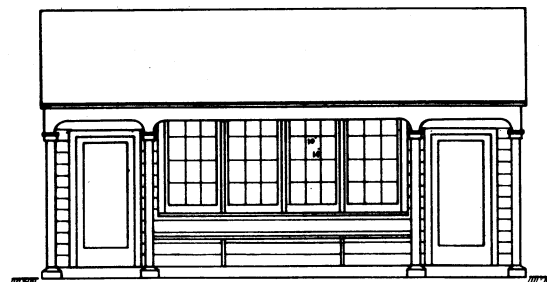


FOUR SUGGESTED LAY-OUTS FOR ROADSIDE STANDS.—Working drawings are not available, but these plans are adapted to construction in a variety of materials. Stands should be set well off the road to provide safe parking, but should be easily seen from both directions.

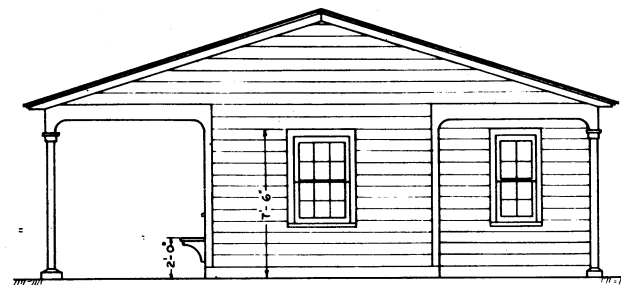


- NOTES:
1. Skids & shoes to be treated with creosote or other preservative.
 2. Siding & flooring to be nailed to all diagonal braces notched into face of studs & top of skids.
 3. When in use, see that site is level, or block up skids as req'd.
 4. Price board to be held in closed position with hooks and eyes located at each end of board.
 5. Metal straps may be used to secure four rafters to the ribbon in place of the 2"x2" cleats shown.
 6. Chains to be secured to counter with eye-bolts and to sides of rafters with hooks. Provide additional hooks on the same rafters toward rear wall and located so that chains will hold each counter section in a closed position.

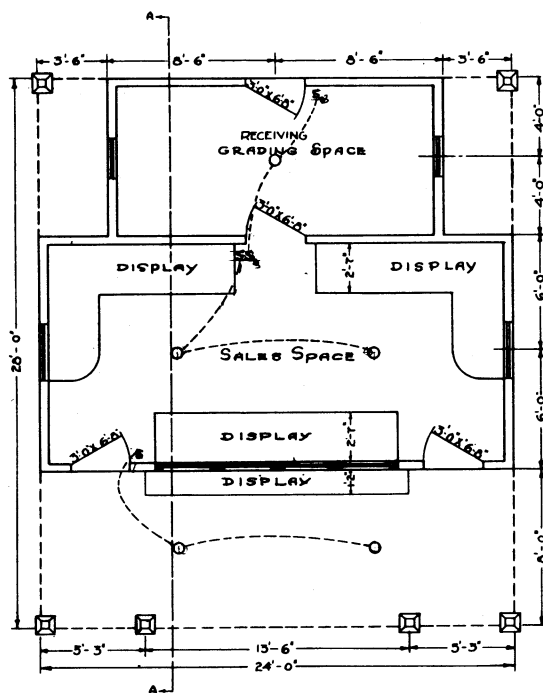
MOVABLE ROADSIDE STAND; 6 by 12 feet.—Placed on skids, this stand can be dragged by truck or tractor. The front may be closed by raising the counters.



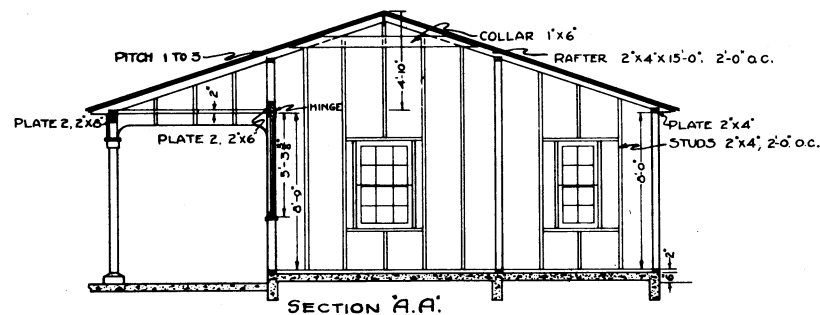
FRONT ELEVATION



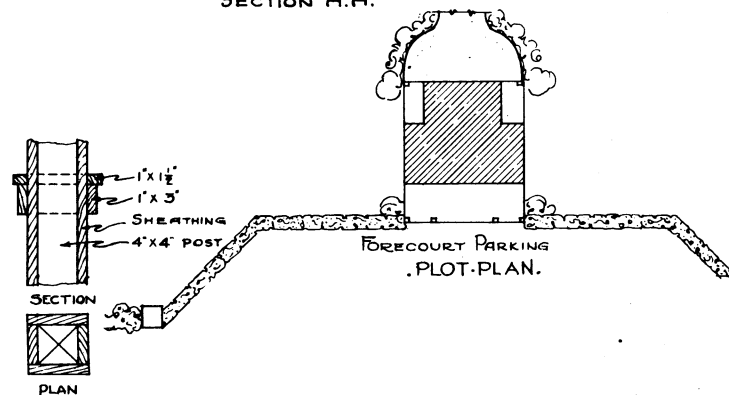
SIDE ELEVATION



PLAN



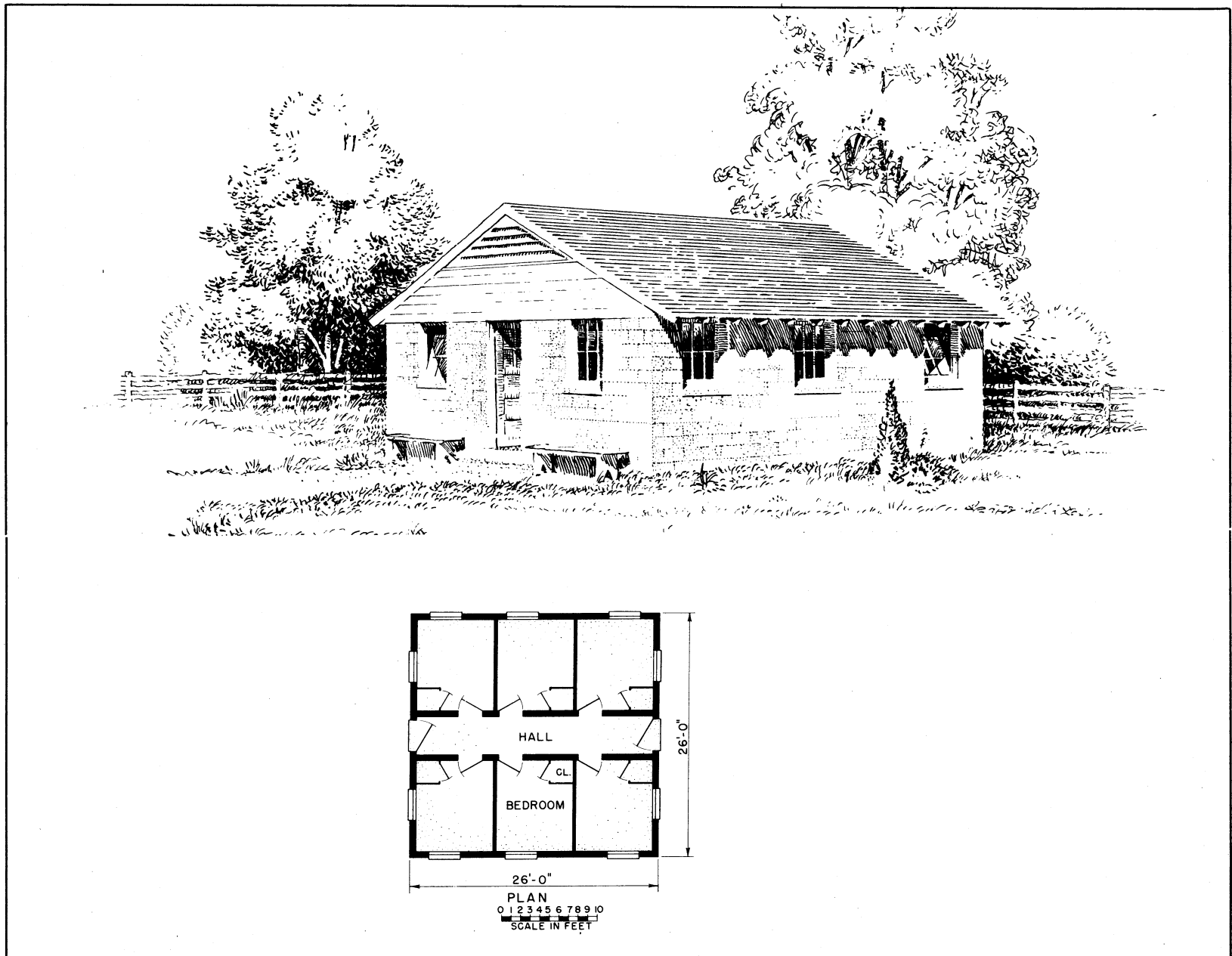
SECTION A.A.



DETAIL OF COLUMN

ROADSIDE STAND.—This permanent stand has a large salesroom and a grading or storage room. The plot plan suggests a court for safe parking. A favorable location may be made more attractive by providing good drinking water, clean rest rooms, and free tables.

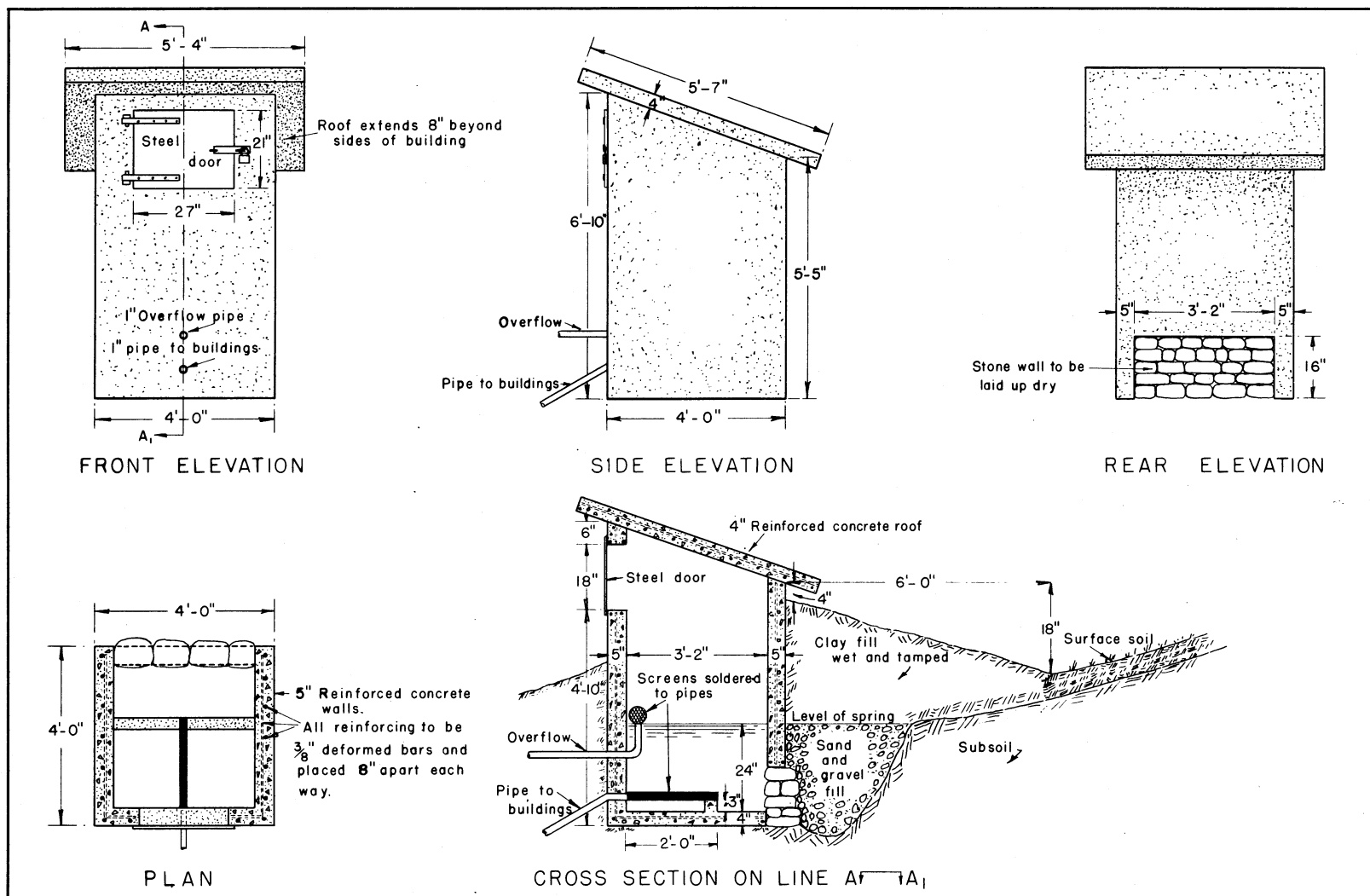
MISCELLANEOUS BUILDINGS AND EQUIPMENT



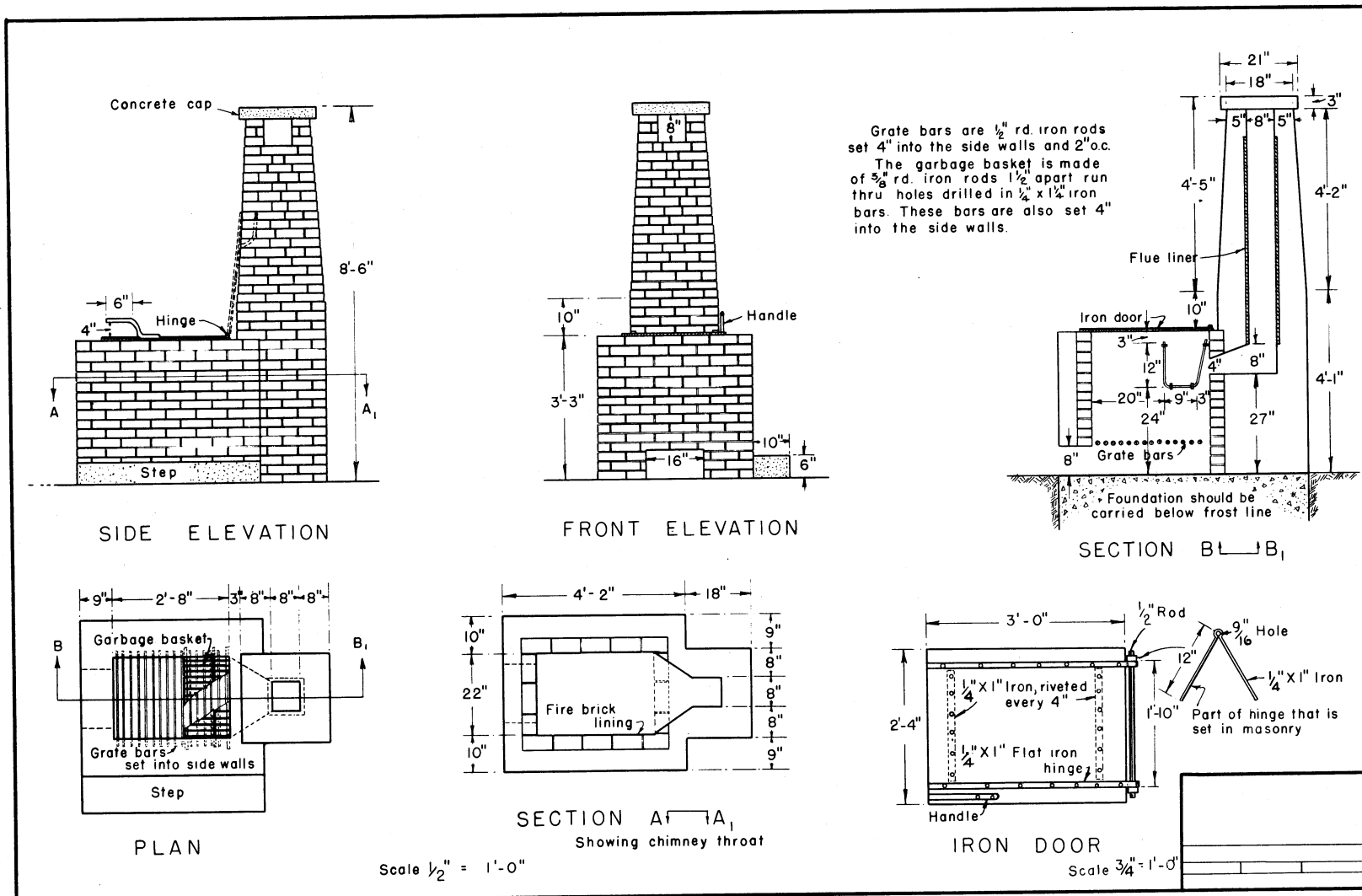
TRANSIENT-LABOR BUNKHOUSE.—Since only the end rooms have two exposures, the ceiling should be insulated. Washing and toilet facilities are most economically provided in a separate building.



121



FARM SPRINGHOUSE.—Before improving a spring a bacteriological examination of the water should be obtained from the State board of health or county laboratory. Care should be taken to keep all surface water and other sources of contamination away from the spring.



INCINERATOR.—Metal basket built into this incinerator makes for efficient disposal of hard-to-burn damp garbage or diseased animal carcasses. Wood or coal must be used to burn a large number of carcasses.

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